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Factors Associated with Delayed Enrollment in HIV Medical Care among HIV-Positive Individuals in Odessa Region, Ukraine

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Abstract

In Ukraine, about one-third of identified HIV-positive individuals are not connected to care. We conducted a cross-sectional survey (n = 200) among patients registered at Odessa AIDS centers in October to December 2011. Factors associated with delayed enrollment in HIV care (>3 months since positive HIV test) were evaluated using logistic regression. Among study participants (mean age 35 ± 8.2 years, 47.5% female, 42.5% reported history of injecting drugs), 55% delayed HIV care enrollment. Odds of delayed enrollment were higher for those with lower educational attainment (adjusted odds ratio [aOR]: 2.65, 95% confidence interval [CI]: 1.04-6.76), not feeling ill (aOR: 2.98, 95% CI: 1.50-5.93), or not having time to go to the AIDS center (aOR: 3.89, 95% CI: 1.39-10.89); injection drug use was not associated with delayed enrollment. Programs linking HIV-positive individuals to specialized care should address enrollment barriers and include education on HIV care benefits and case management for direct linkage to care. HIV testing and treatment should be coupled to ensure a continuum of care.

Keywords

HIV care, Ukraine, linkage to care, delayed HIV care entry, barriers to care

Introduction

Benefits of establishing HIV medical care after diagnosis have been widely acknowledged. Engaging in care improves quality of life, reduces AIDS-related mortality, and decreases HIV transmission.[1–5] However, delayed HIV care initiation constitutes a problem worldwide.[6–12] Initial presentation for care often occurs at the stage of advanced immune suppression, resulting in worse health outcomes.

In Ukraine, at least one-third of persons diagnosed with HIV infection are not enrolled in specialized medical care.[13] One of the reasons is fragmented HIV care system in Ukraine, where a person gets HIV testing and HIV treatment in settings standing apart. HIV medical care is delivered through outpatient AIDS centers, providing specialized care (including antiretroviral therapy [ART] prescription and distribution) for all persons entering HIV care system. People are referred to AIDS centers from a variety of HIV testing sites, such as specialized (tuberculosis and substance abuse) or primary care facilities, correctional institutions, and nongovernmental organizations. Clients navigate HIV care system predominantly without supportive services or with minimal guidance.

Internationally, delayed initiation of HIV care has been associated with certain patient characteristics and contextual factors, occurring disproportionately among males, nonwhite individuals, less educated persons, and individuals using drugs and/or living in poverty.[6,7,10,14–18] Additionally, HIV diagnosis at a site without collocated medical care, transportation barriers, stigma and fear of HIV disclosure,[14,19] and nonperceiving oneself as ill[16,20] was associated with delayed care initiation.

Ukraine has the second largest HIV epidemic in Europe[21] and is currently undergoing health care reform.[22] Understanding the barriers to HIV care entry will be crucial for achieving the 90-90-90 targets for HIV testing, treatment, and viral suppression as set

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forth by the Joint United Nations Programme on HIV/AIDS.[23] To address barriers and link HIV-positive persons to medical care, providers of testing and referral services should be aware of factors that increase client risk of delaying care.[6,8,10,24] Identifying such factors may advice programmatic efforts to achieve timely linkage to care and better treatment and prevention outcomes.

Methods

Study Sites and Population

In a cross-sectional study, we examined factors associated with a delayed HIV care entry among persons registering for HIV medical care in Odessa region, Ukraine. We defined entry into HIV medical care as completed registration at AIDS center for medical observation and HIV treatment.

Of 24 regions in Ukraine, Odessa region is among those with the highest HIV prevalence, morbidity, and mortality.[13,25] We selected Odessa regional AIDS center, Odessa city AIDS center, and 4 rural trust offices as study sites. Regional AIDS center serves urban (Odessa city) and rural (other parts of Odessa region) populations, while city center serves urban residents. Trust offices provide HIV testing and counseling (HTC); some of them provide ART distribution.

Individuals who were 18+ years, recently registered for HIV care at a study site, able to provide a date of his or her positive HIV test result, and able to provide informed consent, were included in the study. Lack of previous history of HIV care was confirmed with patient's medical record.

Having identified an eligible patient, HIV physician on site offered him or her study participation. Interested patients met with an interviewer at each study site; patients provided informed consent before completing the questionnaire.

Data Collection

Patients completed a 30-minute face-to-face structured interview administered in Russian or Ukrainian language by independent interviewer. Paper-based questionnaire explored factors that might affect participant linkage to HIV care, including perceived barriers to care. Barrier-related questions were based on existing literature and recommendations of local HIV experts. The questionnaire was pilot tested with 20 patients at Odessa city AIDS center. Institutional review board of Ukrainian Institute on Public Health Policy reviewed and approved all study procedures and instruments.

Variables

Dependent variable. We analyzed the outcome of interest—delayed HIV care entry—as dichotomous variable: delayed versus timely entry into HIV medical care. Consistent with the Centers for Disease Control and Prevention recommendations for timely linkage to HIV care, we defined delayed HIV care entry as later than 3 months after confirmed HIV diagnosis.[8,26]

Independent variables. We categorized independent variables as participant sociodemographic characteristics (gender, age, education, employment status, residence, marital status, type of income), lifetime injection drug use (IDU) history (yes/no), experience with HTC procedure, and perceived barriers to HIV medical care initiation.

Survey Questions

We asked 18 multiple-choice questions about participant HTC experience, based on the World Health Organization client questionnaire.[27] In addition, we assessed participant perceptions of barriers to HIV care entry asking: "If any of these factors hindered your decision to register at AIDS center, please estimate the strength of impact of each factor." Proposed 11 potential barriers included "Didn't feel ill," "Felt embarrassed in front of health care providers," and so on (see Appendix). We used a 7-point Likert scale (from extremely weak to extremely strong) for factor impact estimation.

Statistical Analysis

Descriptive statistics were generated for all study variables. With bivariate analyses, we assessed association between each independent variable and delayed HIV care entry using χ^2 and t tests. Variables significant at <0.10 level and potential covariates (age, gender, education, testing site, and IDU history) were manually entered into a multivariable logistic regression model to identify factors independently associated with delayed HIV care entry, at a level of significance 0.05.

For analysis, we grouped responses gathered on a 7-point scale into 3 categories: strong, moderate, and weak. We performed statistical analyses using IBM SPSS Statistics 20 software.

Results

Of 207 consecutive eligible outpatients, 200 (96.6%) agreed to participate. The main reason of nonparticipation was lack of time.

In total, 200 participants completed the survey at the study sites. Table 1 shows sociodemographic characteristics of the sample. Participant mean age was 35 $\pm$ 8.2 years. Ninety-five (47.5%) participants were women, 156 (78%) were urban residents, 131 (two-third) had high school or less education, 46 (23%) were unemployed, and 85 (42.5%) reported IDU history.

One hundred ten (55%) participants enrolled in HIV medical care later than 3 months after receiving positive test result. In bivariate analysis, the following characteristics were associated with delayed care: being 35 to 44 years old, having high school or less education, having HIV-related disability, and not having a job (Table 2). "Delayers" reported the following barriers to care: "Did not feel ill"; "Was afraid that my HIV-positive status would become known at work or among neighbors"; "Was afraid that my HIV-positive status would become known to my family"; "Believed I did not have money to pay for the medical care"; and "Did not have time to go to AIDS center." In addition, those tested at trust office had greater odds of delaying care (Table 2).

Table 1. Sociodemographic Characteristics of the Study Participants by the Time of Enrollment in HIV Care.[a]

	Total (N = 200)		Delayed HIV Care[b] (n = 110)		Timely HIV Care[c] (n = 90)	
Categories	n	%/SD	n	%/SD	n	%/SD
Gender						
Male	105	52.5	60	54.5	45	50.0
Female	95	47.5	50	45.5	45	50.0
Age, years						
Mean	34.9	8.25	35.4	7.05	34.3	9.55
Age-group, years						
18-24	16	8.0	6	5.5	10	11.2
25-34	88	44.2	47	42.7	41	46.1
35-44	66	33.2	44	40.0	22	24.7
45+	29	14.6	13	11.8	16	18.0
Place of permanent/predominant residence						
City, small town	156	82.5	86	81.9	70	83.3
Village	33	17.5	19	18.1	14	16.7
Marital status						
Officially married	62	31.6	36	34.0	26	28.9
In a civil marriage/having a steady partner	66	33.7	29	27.4	37	41.1
Not having a steady partner	68	34.7	41	38.6	27	30.0
Education						
Incomplete high school/high school	131	65.9	82	74.5	49	55.1
Vocational school	36	18.1	18	16.4	18	20.2
Bachelor/master degree	32	16.0	10	9.1	22	24.7
Employment during past year (several options possible)						
Permanent job (official)	46	24.1	19	17.9	27	31.9
Permanent job (nonofficial)	27	14.2	12	11.3	15	17.6
Private enterprise	9	4.7	6	5.7	3	3.5
Temporary job	38	19.9	23	21.7	15	17.6
Disability related to HIV	13	6.8	11	10.4	2	2.4
Disability nonrelated to HIV	6	3.1	3	2.7	3	3.5
Other	6	3.1	2	1.9	4	4.7
Not working	46	24.1	30	28.4	16	18.8
Type of income						
Permanent income	107	56.0	53	50.0	54	63.5
Occasional income	84	44.0	53	50.0	31	36.5
IDU experience						
Yes	85	42.5	50	45.5	35	38.9
No	115	57.5	60	54.5	55	61.1

Abbreviation: IDU, injection drug use; SD, standard deviation.
[a]Percentages may not add up to 100% due to rounding and/or missing information.
[b]Delayed HIV care means more than 3 months after receiving positive HIV test result.
[c]Timely HIV care means 3 months and less after receiving positive HIV test result.

With multivariable logistic regression model, we found that persons with high school or less education had greater odds to delay HIV care entry compared to more educated individuals (adjusted odds ratio [aOR]: 2.65, 95% confidence interval [CI]: 1.04-6.76; Table 2). "Delayers" were also more likely to report "not feeling ill" (aOR: 2.98, 95% CI: 1.50-5.93) and "not having time to go to AIDS center" (aOR: 3.89, 95% CI: 1.39-10.89). We did not detect any association between HTC procedural factors or IDU experience and delayed HIV care entry.

Discussion

Our findings from cross-sectional study in Odessa, Ukraine, suggest that in the absence of direct linkages between HIV testing and HIV care services, 110 (55%) of the study participants delayed HIV care entry for more than 3-month period after HIV detection. Delayed enrollment in HIV care was associated with participant sociodemographic characteristics and self-perceived barriers. Less educated individuals, those who reported not feeling ill, or not having time to go to AIDS center were most likely to delay HIV medical care after receiving positive test result.

Our results support previous findings that lower level of education correlated with delayed presentation for HIV care—as well as with late HIV testing, less HIV knowledge, and lower perception of personal HIV risk.[17,18,26,28] Low risk awareness, in turn, predicted delayed HIV care initiation in the United States.[6,7]

Table 2. Crude and Adjusted Odds Ratios (ORs) for Delayed HIV Care Entry.

	Delayed HIV Care (n = 110)		Timely HIV Care (n = 90)		Crude ORs (95% CI)		Adjusted ORs[a] (95% CI)	
Categories	n	%	n	%	OR	95% CI	aOR	95% CI
Gender								
Male	60	54.5	45	50.0	1.2	0.69-2.10		
Female	50	45.5	45	50.0	Ref			
Age-group								
18-24	6	5.5	10	11.2	Ref			
25-34	47	42.7	41	46.1	1.91	0.64-5.71		
35-44	44	40.0	22	24.7	3.33	1.07-10.36		
45+	13	11.8	16	18.0	1.35	0.39-4.72		
Education								
Incomplete high school/high school/vocational school	82	74.5	49	55.1	3.28	1.46-7.37	2.65	1.04-6.76
Bachelor/master degree	28	25.5	40	44.9	Ref		Ref	
Work experience in past year (several options possible)								
Permanent job (official)	19	17.9	27	31.8	Ref			
Permanent job (nonofficial)	12	11.3	15	17.6	1.14	0.44-2.97		
Private enterprise	6	5.7	3	3.5	2.84	0.63-12.80		
Temporary job	23	21.7	15	17.6	2.18	0.91-5.23		
Disability related to HIV	11	10.4	2	2.4	7.82	1.55-39.37		
Disability nonrelated to HIV	3	2.8	3	3.5	1.42	0.12-4.28		
Other	2	1.9	4	4.7	0.71	0.12-4.28		
Not having a job	30	28.3	16	18.8	2.66	1.15-6.20		
Where did you get tested for HIV								
Health care facility (inpatient/outpatient)	62	56.4	51	56.7	Ref		Ref	
Trust office	24	21.8	7	7.8	2.82	1.12-7.08	2.80	0.92-8.53
AIDS center	10	9.1	16	17.8	0.51	0.22-1.23	0.46	0.18-1.20
Jail/prison	6	5.5	2	2.2	2.47	0.48-12.76	1.02	0.16-6.59
Other	8	7.3	14	15.6	0.47	0.18-1.21	0.36	0.12-1.08
IDU experience								
Yes	50	45.5	35	38.9	1.31	0.74-2.31		
No	60	54.5	55	61.1	Ref			
Did not feel ill								
Weak	47	44.3	60	68.2	Ref		Ref	
Moderate/strong	59	55.7	28	31.8	2.69	1.49-4.85	2.98	1.50-5.93
Afraid that HIV-positive status would be known at work or among neighbors								
Weak					Ref			
Moderate/strong					1.88	1.04-3.40		
Afraid that my HIV-positive status would be known to my family								
Weak	40	37.0	48	53.9	Ref			
Moderate/strong	68	63.0	41	46.1	1.99	1.12-3.52		
Felt ashamed in front of health care providers								
Weak	82	76.6	78	87.6	Ref			
Moderate/strong	25	23.4	11	12.4	2.16	0.99-4.69		
Did not have enough money to pay for medical care								
Weak	76	71.0	76	86.4	Ref			
Moderate/strong	31	29.0	12	13.6	2.58	1.24-5.41		
Did not have time to go to AIDS center								
Weak					Ref		Ref	
Moderate/strong					3.76	1.55-9.14	3.89	1.39-10.89

Abbreviation: CI, confidence interval; IDU, injection drug use.
[a]Adjusted by age, gender, education, testing site, and IDU history.

The fact that persons not having time to go to the AIDS center delayed HIV care is not surprising, as in Ukraine, with its fragmented health care system, people often test for HIV and seek HIV care in different facilities; this makes linkage to care more challenging. People may delay their initial visit to the AIDS center, especially while not feeling sick, because they have heard about a complex, time-consuming process of registration at AIDS center, which requires multiple visits, numerous health examinations, and waiting in the line to be seen by doctor. In the study in South Africa, Drain et al[29] found that

perceiving health service delivery barriers (including "having to wait too long to see nurse/doctor") was associated with late-stage HIV disease presentation. At the same time, additional linkage services for newly diagnosed individuals (brief case management or peer navigator support) were effective in the US-based studies.[9,29] Therefore, making registration process more accessible by providing all examinations on-site (at the AIDS center) and integration of services might facilitate HIV care initiation in Ukraine. Additional supportive services may assist individuals in their HIV awareness and use of HIV medical care.

Our finding that "not feeling ill" predicts delaying care supports prior findings that asymptomatic patients often postpone HIV care until feeling sick,[6,8,10,30] while perception of HIV disease severity was strongly associated with care seeking.[16,20] In Ukraine, as elsewhere, individuals tested HIV positive might benefit from education about benefits of ART and HIV care across all stages of the disease.

Our findings are subject to several limitations. First, a relatively small sample size makes type II error possible. Second, as we used a clinic-based sample of people who eventually entered HIV care, our findings may not be generalizable for those completely disconnected from health care system who may never seek HIV care.

Nevertheless, these limitations do not affect the importance of the present study, which addresses the challenge of linking individuals to specialized HIV medical care in countries with fragmented health care system, such as Ukraine. Knowing characteristics of potential "delayers" can inform strategies aimed to reduce existing barriers to entering HIV care. For successful linkage to HIV services, strategies targeting individuals and communities in Ukraine should include patient education on benefits of HIV care at any stage of disease, training health professionals in providing such information to patients, and programs providing direct linkage services. On the structural level, HIV testing and care services should be coupled to ensure that newly diagnosed individuals successfully link to HIV medical care.

Appendix

Variants of Barriers to Enrollment in HIV Care, Provided to the Participants

- Was not sure about the accuracy of my HIV test result
- Did not feel ill
- Was afraid that my HIV-positive status would become known at work or among neighbors
- Was afraid that my HIV-positive status would become known to my family
- Was afraid of the disclosure of my private life details (behaviors, sexuality, sexual orientation, etc)
- Felt ashamed in front of health care providers
- Did not believe that I could obtain real help
- Believed I didn't have money to pay for the medical care
- Did not have money for transportation to the AIDS center
- Did not have time to go to AIDS center
- Heard about low quality of work of the AIDS centers staff
- Heard about bad attitude of the AIDS center staff to the people living with HIV

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