

Delay in Seeking Care for Sexually Transmitted Diseases in Young Men and Women Attending a Public STD Clinic

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Abstract: *Background:* Delay in seeking care for sexually transmitted diseases (STDs) has adverse consequences for both the individual and population. We sought to identify factors associated with delay in seeking care for STDs.

Methods: Subjects included 300 young men and women (aged 15-24) attending an urban STD clinic for a new STD-related problem due to symptoms or referral for an STD screening. Subjects completed a structured interview that evaluated STD history, attitudes and beliefs about STDs, depression, substance use, and other factors possibly associated with delay. Delay was defined as waiting > 7 days to seek and obtain care for STDs.

Results: Nearly one-third of participants delayed seeking care for > 7 days. Significant predictors for delay included self-referral for symptoms as the reason for visit (OR 5.3, 95% CI: 2.58 – 10.98), and the beliefs “my partner would blame me if I had an STD” (OR 2.44, 95% CI: 1.30 – 4.60) and “it’s hard to find time to get checked for STDs” (OR 3.62, 95% CI: 1.95 – 6.69), after adjusting for age, race, sex, and other factors. Agreeing with the statement “would use a STD test at home if one were available” was associated with a decrease in delay (OR 0.24, 95% CI: 0.09 – 0.60).

Conclusions: Many young persons delay seeking care for STDs for a number of reasons. Strategies to improve STD care-seeking include encouragement of symptomatic persons to seek medical care more rapidly, reduction of social stigmas, and improved access to testing options.

Keywords: Delay, healthcare-seeking behavior, men, sexually transmitted diseases, symptoms, women.

INTRODUCTION

Sexually transmitted diseases (STDs) have a significant impact on many men and women of reproductive age [1]. Nearly half of the 19 million new STDs diagnosed in the U.S. each year occur among persons aged 15-24 years [2]. Delay in seeking care for STDs can result in transmission to others, increase the risk of acquiring further infections (including HIV), or increase the likelihood of consequences such as infertility and chronic pelvic pain. Previous research suggests that 20% to 50% of persons delay seeking care and testing for STDs by more than a week; with many waiting a month or more [3-5]. Therefore, emphasizing early diagnosis and management of STDs are crucial public health strategies.

In general, STD clinics serve as a place where persons with STD-related concerns or symptoms seek care [6]. Many individuals are referred to STD clinics for testing or evaluation, often by a sexual partner who has been diagnosed with an STD or by another healthcare provider due to STD-related concerns. Over 2 million people utilize STD clinics

in the U.S. each year, most of whom are young, of low socioeconomic status, and are of nonwhite minority groups [7]. Young men and women attending STD clinics represent a population at increased risk for STDs and HIV infection and among whom delay in seeking care might be especially harmful. Furthermore, home-testing for STDs is becoming more common [8-11] and could reduce delay in obtaining testing. However, it remains unclear whether persons who delay seeking care in clinics would be more likely to use a self-test at home compared to persons who already seek care rapidly.

Barriers to care-seeking may be related to individual factors (e.g. attitudes, social stigma, mental or physical health conditions) or health system factors (clinic or testing factors) [3-5, 12-18]. Several previously conducted studies have found women tend to delay seeking care longer than men, especially if the visit is due to symptoms [3-5, 18]. Women with symptoms often delay seeking care because they believe the symptoms are normal or unrelated to STDs, and thus may initially wait for the symptoms to subside.

The primary objectives of our study were to: identify individual and clinic-based factors associated with delay in seeking care for STDs among young people attending an STD clinic, determine whether these factors varied according

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to gender, and assess potential interest in the use of home STD-self-testing and whether interest varied in persons who sought care rapidly and those who delayed seeking care.

METHODS

Subjects and Recruitment

Participants (n=448) were recruited from a Pittsburgh metropolitan area urban STD clinic between 1999 and 2002. The clinic provided free STD testing, diagnosis, and treatment to approximately 150 individuals each week. Details of the study methods have been published previously [19]. The study received approval from the University of Pittsburgh Institutional Review Board and all participants provided written informed consent. In brief, men and women were eligible to participate if they were 15-24 years of age and had received a clinical assessment for a new STD-related problem. Of the 448 total participants in the parent study, this analysis was limited to 300 young men and women indicating the reason for their clinic visit as due to the presence of STD-related symptoms (symptomatic, n=189) or referral by a sexual partner or health care provider for STD screening (asymptomatic referral, n=111). Persons seeking a general check-up or screening test were excluded from these analyses because a specific delay interval could not be determined.

All participants provided written informed consent, and each received a monetary compensation of \$20 to \$40, as determined by the length of the interview related to self-reported substance use. Those reporting substance use additionally completed a youth-specific version of the Structured Clinical Interview for Diagnostic and Statistical Manual-IV diagnosis (SCID) (DSM-IV) and were asked further questions about the frequency and duration of use in the past year in order to assess the presence of a past-12-months' substance use disorder involving alcohol or marijuana [20].

Measures

Following the clinical assessment for STDs, a trained female interviewer administered the questionnaire in-person to participants. The questionnaire asked about demographic and clinical characteristics, whether the partner had a new STD, previous history of STDs, the timing of their decision to seek care, and also assessed the presence of alcohol/substance abuse or dependence, as previously described. Clinically relevant depressive symptoms were defined as a score of 24 or greater on the 20-item Center for Epidemiological Studies-Depression Scale (CES-D) [21]. A current STD was defined as a laboratory-confirmed diagnosis of chlamydia, gonorrhea, trichomoniasis, or a new clinical diagnosis of genital herpes or warts. Proximity to the clinic was categorized as living within city limits or not.

The investigators were not aware of a validated measure to assess delay in seeking care for STDs at the time of the study. Therefore, to assess attitudes and beliefs of STDs, sexual behavior, and health in general, we included 21 items suggested in a model that outlines a broad set of possible factors that could influence STD healthcare seeking behavior [22]. These included individual factors and those related to clinic or structural factors, such as: attitudes/beliefs about STDs, having a primary care physician, visiting the dentist,

exercise, diet, alcohol/drug use, risky/dangerous behavior, etc. [22]. Subjects' consideration of using an STD test at home, if one were available, was also examined as previous research has suggested development of home tests as an alternative testing method [8-11]. Ratings for the items were based on a 6-point Likert scale that ranged from "strongly agree" to "strongly disagree." For analysis purposes and due to the small number of responses in each category, the responses were dichotomized to "agree" or "disagree." The specific questionnaire items are available from the authors by request. We conducted an exploratory factor analysis in order to combine related attitudes and beliefs into a scale, but no groupings were significant and therefore all variables were treated as individual attitudes and beliefs.

Participants were asked to state the number of days prior to the clinic visit that they: 1) first noted symptoms (if symptomatic) or were referred to the clinic by either a sexual partner or health care professional (if asymptomatic); 2) thought they had a problem that needed evaluation (after experiencing symptoms or being referred); and 3) decided to seek care. The *Total Care-Seeking Interval* was defined as the number of days between the time a person first noticed symptoms (if symptomatic) or from being referred to get tested for an STD (if asymptomatic referral) and the time of the actual clinic visit.

Statistical Analysis

African-American (n=178) and other non-white racial/ethnic groups (n=17) were combined for the analysis as few participants were identified as Hispanic, biracial, or as persons of a non-specified race. The primary outcome variable, Total Care-Seeking Interval, was highly skewed, with 70% of subjects seeking care within 7 days, and 3% waiting more than 100 days before seeking care. Thus, we categorized Total Care-Seeking Interval as those who sought care rapidly (≤ 7 days) or those who delayed seeking care (> 7 days) because delay in seeking care by more than 7 days has been associated with significant health outcomes and was the cut point used by most other studies on this topic [3, 4, 23, 24]. Although defined as "delay in seeking care", this period refers to the entire span of time an at-risk STD patient undergoes before completing STD screening, with at-risk defined as the experience of STD symptom or referral by partner/healthcare provider.

Descriptive statistics included the chi-square and Fisher's exact test to compare categorical variables and to determine the association of delay with individual characteristics, risk behavior, and attitudes and beliefs. To identify factors that were independently associated with care-seeking, logistic regression was performed, including age, race, gender, variables of clinical significance, and all variables that were significant in bivariate analysis at $p < 0.05$ and removing variables at $p < 0.10$. Thus, the following predictors were initially selected for multivariable modeling: presence of symptoms, age, race, gender, insurance, living outside city limits, "STD clinics keep records confidential", "would consider using an STD test at home if one were available", "more likely to get an STD test without genital exam", "getting to the STD clinic is easy", "it's hard to find time to get checked", and "my partner would blame me if I had an STD." All analyses were conducted within the entire sample

and separately by gender. If predictors of the outcome appeared to be different in males and females, interaction terms were tested in the overall model to determine whether any of the interactions were statistically significant.

Two-tailed tests were used and p -values <0.05 were considered statistically significant. All analyses were conducted with SAS version 9.1.3 and Statistical Package for the Social Sciences (SPSS) Statistics, version 19 [25, 26].

RESULTS

The study cohort included a total of 300 young men and women between the ages of 15-24 years who indicated the reason for their clinic visit as due to the presence of STD-related symptoms (symptomatic, $n=189$) or referral by a sexual partner or health care provider for STD screening (asymptomatic referral, $n=111$). The mean age was 20.4 years, half were male, and 54% were Caucasian or white. Twenty percent were between the ages of 15-18, 46% were 19-21, and 34% were ≥ 22 years of age. Fifty-nine percent ($n=176$) reported an annual income of $< \$20,000$. Insurance status varied among participants as thirty-eight percent had private insurance, eighteen percent had Medicaid, and forty-four percent of participants did not have health insurance. Twenty-six percent of participants lived within city limits. In addition, 39% were diagnosed with a new STD at the clinic visit, and 25% reported having been diagnosed with an STD in the previous 12 months.

Among the 300 study subjects, 211 (70%) sought care within 7 days. Of those who sought care within 7 days, 15 (7%) sought care on the day of symptoms or referral for STD screening, 62 (29%) sought care within 1 day, and 134 (64%) sought care within 3 days. Thus, 30% or nearly one-third delayed seeking care for more than 7 days. Among those with symptoms, 38% of men and 39% of women delayed seeking care for more than 7 days. Among asymptomatic persons referred to treatment, men were somewhat more likely to delay than women, although the difference was not statistically significant (19% vs 9%).

In bivariate comparisons, persons were significantly ($p<0.01$) more likely to delay seeking care if they were Caucasian or white, or if symptoms were the reason for visit (vs asymptomatic referral) (Table 1). Individuals were also significantly more likely to delay if they agreed that "my partner would blame me if I had an STD" ($p<0.05$) and "it's hard to find time to get checked for an STD" ($p<0.01$). Young persons were less likely to delay seeking care if they agreed that "getting to the STD clinic is easy", or "STD clinics keep records confidential" (Table 1). Age, gender, depression, current substance use disorder, as well as other attitudes and beliefs (individual and clinic factors) were among the factors not significantly associated with delay.

Results were similar when stratified by gender, although females were significantly more likely to delay if they agreed that "most people think you are a bad person for getting tested for STDs" (Table 1). The relationship of other factors and delay in seeking care in males and females are shown in Table 1.

Interest in home testing for STDs was also assessed, and a similar proportion of men (93%) and women (88%) stated

that they would consider using an STD test at home if one were available. Persons who were interested in home testing were also less likely to delay seeking care.

The final multivariable model, including all participants, identified four factors that were independently associated with delay in seeking care after adjusting for age, race, sex, and the following factors or beliefs: live outside of city, insurance, "getting to the STD clinic is easy," "STD test clinics keep records confidential," and "more likely to get an STD test without genital exam." Symptomatic persons were more likely to delay seeking care for STDs compared to asymptomatic referrals (OR=5.32, 95% CI: 2.58, 10.98) (Table 2). The beliefs "it's hard to find time to get checked" (OR=3.62, 95% CI: 1.95, 6.69) and "my partner would blame me if I had an STD" (OR=2.44, 95% CI: 1.30, 4.60) were also associated with a delay in seeking care for STDs. Agreeing with the statement, "would use a STD test at home if one were available" (OR=0.24, 95% CI: 0.09, 0.60) was associated with a decrease in delay, indicating that persons who came to the clinic earlier were also interested in using a STD test at home.

In multivariable models stratified by gender and following adjustment, all of the factors remained significantly associated with delay for males except for the belief, "my partner would blame me if I had an STD". Among females, the presence of symptoms and the beliefs "it's hard to find time to get checked" and "my partner would blame me if I had an STD" were significantly associated with delay. In addition, agreeing with the statement, "more likely to get an STD test without a genital exam" was associated with a decrease in delay among females. None of the gender*factor interaction terms were statistically significant, indicating that none of the factors were substantially more relevant in one gender than the other.

DISCUSSION

STD clinics are accessed by more than 2 million people with STD-related symptoms or concerns in the U.S. each year, of which the majority are young, of minority groups, and of low socioeconomic status [6, 7]. Persons attending STD clinics are among the highest risk group for STD and HIV infection that exist and thus represent an important population through which prevention of further disease transmission as well as reduction of delay in seeking care efforts could be targeted. In this study, factors associated with delay in seeking care for STDs were identified and compared among 300 adolescents and young adults attending a free STD clinic. In multivariable analysis, the factors most significantly associated with delay in seeking care for >7 days included the presence of symptoms (vs asymptomatic referral), difficulty finding time to get checked at the clinic, and belief that a partner would blame you for having an STD. These findings suggest that individual health issues (symptoms), factors associated with access to clinic services, and some individual attitudes and beliefs impact care-seeking for STDs.

Delays in STD care-seeking and testing are important public health issues due to both the communicable nature of STDs (person-time of infectiousness) and the risk of

Table 1. Number and Proportion of Young Men and Women Attending an STD Clinic in Pittsburgh from 1999-2002 who Delayed Seeking STD Care for >7 days, by Selected Characteristics

	Overall		Men		Women	
	Total	Delayed Care Seeking, n (%)	Total	Delayed Care Seeking, n (%)	Total	Delayed Care Seeking, n (%)
Individual Characteristics	300	89 (30)	149	46 (31)	151	43 (29)
Age						
< 22 years	198	56 (28)	96	28 (29)	102	20 (20)
≥ 22 years	102	33 (32)	53	18 (34)	49	15 (31)
Race						
Caucasian or white	105	39 (37) *	57	22 (39)	48	17 (35)
Non-white	195	50 (26)	92	24 (26)	103	26 (25)
Annual income ^a						
< \$20,000	176	56 (32)	77	27 (35)	99	29 (29)
> \$20,000	119	32 (27)	69	18 (26)	50	14 (28)
Insurance status						
Medicaid	54	13 (24)	16	6 (38)	38	7 (18)
Private	113	31 (27)	55	14 (25)	58	17 (29)
None	133	45 (34)	78	26 (33)	55	19 (35)
Reason for visit						
Symptoms	189	73 (39) **	92	35 (38) *	97	38 (39) **
Asymptomatic referral	111	16 (14)	57	11 (19)	54	5 (9)
Substance use disorder (alcohol or drugs)						
Yes	128	37 (29)	79	20 (25)	49	17 (35)
No	172	52 (30)	70	26 (37)	102	26 (26)
Depression ^b						
Yes	78	29 (37)	35	14 (40)	43	15 (35)
No	222	60 (27)	114	32 (28)	108	28 (26)
Proximity to clinic						
Live within city limits	212	56 (26)	98	26 (27)	114	30 (26)
Live outside city limits	88	33 (38)	51	20 (29)	37	13 (35)
Attitudes, Beliefs, Knowledge						
Individual Factors						
STDs almost always cause symptoms						
Agree	151	49 (32)	69	26 (38)	82	23 (28)
Do not agree	149	40 (27)	80	20 (25)	69	20 (29)
You can generally tell if partner has STD						
Agree	61	18 (30)	32	12 (38)	29	6 (21)
Do not agree	239	71 (30)	117	34 (29)	122	37 (30)
My partner would blame me if I had STD						
Agree	175	62 (35) **	103	35 (34)	72	27 (38) *
Do not agree	125	27 (22)	46	11 (24)	79	16 (20)
No way to get STD if always use condom						
Agree	53	20 (38)	24	10 (42)	29	10 (35)
Do not agree	247	69 (30)	125	36 (29)	122	33 (27)

(Table 1) contd.....

	Overall		Men		Women	
	Total	Delayed Care Seeking, n (%)	Total	Delayed Care Seeking, n (%)	Total	Delayed Care Seeking, n (%)
STDs are not serious health problem						
Agree	25	11 (44)	11	5 (46)	14	6 (43)
Do not agree	275	78 (28)	138	41 (30)	137	37 (27)
Most would think you are a bad person for getting tested for STDs						
Agree	114	39 (34)	59	17 (29)	55	22 (40) *
Do not agree	155	50 (32)	59	29 (32)	96	21 (22)
Clinic Factors						
Hard to find time to get checked						
Agree	119	56 (47) **	67	29 (43) **	57	27 (47) **
Do not agree	181	33 (18)	87	17 (20)	94	16 (17)
Getting to the STD clinic is easy						
Agree	265	73 (28) *	132	37 (28) *	133	36 (27)
Do not agree	35	16 (46)	17	9 (53)	18	7 (39)
Getting checked for STD is embarrassing						
Agree	147	51 (35)	77	27 (35)	70	24 (34)
Do not agree	153	38 (25)	72	19 (26)	81	19 (24)
STD test clinics keep records confidential						
Agree	280	78 (28) **	133	38 (29)	147	40 (27) **
Do not agree	20	11 (55)	16	8 (50)	4	3 (75)
More likely to get STD test without genital exam						
Agree	151	38 (25)	82	24 (29)	69	14 (20) *
Do not agree	149	51 (34)	67	22 (33)	82	29 (35)
Home Testing for STDs						
Would consider STD test at home if available						
Agree	272	76 (28) *	139	41 (30)	133	35 (26)
Do not agree	28	13 (46)	10	5 (50)	18	8 (44)

Abbreviations: STD = Sexually transmitted disease.

Statistical comparison of persons who delayed >7 days according to the presence of an individual characteristics or belief compared to persons who did not delay seeking care:

* $p < 0.05$, ** $p < 0.01$.

[‡]Annual income was not reported by 5 participants.

[§]Depression measured as CES-D score ≥ 24 ; Substance use disorder according to DSM-IV criteria for alcohol or marijuana abuse or dependence.

individual health consequences (pelvic inflammatory disease) [27, 28]. In our sample, two attitudes/beliefs stood out most strongly as independently associated with delay and suggest that both clinic-related variables and individual attitudes and beliefs are associated with delay. The first, “it’s hard to find time to get checked for STDs”, suggests that either persons don’t prioritize the STD visit in relation to their competing activities, or that the clinic is not accessible at the time they would like to use it. In urban settings, STD clinics are often available several days a week with limited night and weekend access; however, in settings where access to an STD clinic is more limited, delay could be longer. Integration of STD services with other clinical services has therefore been suggested as a way to avoid the stigma as well as other factors that may cause some persons to delay care [29]. The other attitude that remained significant in multivariable modeling, “my partner would blame me if I

had an STD”, suggests that either social stigma related to STDs, or concerns about relationships and their outcomes, could impact test seeking.

We sought to identify any gender differences in factors associated with delays in seeking care. Overall, there were minimal differences in time to care-seeking by gender, and the factors and attitudes and beliefs associated with delay were similar. In univariate analysis, women referred by a sexual partner or health care provider to get tested for STDs (asymptomatic referrals) tended to seek care sooner than men, although the difference was not significant. This is consistent with previous studies reporting the increased likelihood of women, in general, to utilize health care services compared to men [30-32]. Multivariately, females indicating they would be “more likely to get an STD test without a genital exam” were found to delay less. No other

Table 2. Factors Associated with Delay in Seeking Care Among 300 Young Men and Women Attending an STD Clinic: Multivariable Logistic Regression

Factors	OR (95% CI)					
	Overall ^a (n=300)		Males ^b (n=149)		Females ^c (n=151)	
Presence of symptoms (vs asymptomatic referral)	5.32	(2.58 - 10.98)*	4.72	(1.75 - 12.77)*	8.32	(2.35 - 29.43)*
Partner would blame me if I had a STD	2.44	(1.30 - 4.60)*	-		4.60	(1.74 - 12.18)*
Hard to find time to be checked	3.62	(1.95 - 6.69)*	3.15	(1.33 - 7.42)*	4.44	(1.70 - 11.62)*
Would use STD test at home if available	0.24	(0.09 - 0.60)*	0.15	(0.03 - 0.72)*	-	
More likely to get an STD test without genital exam	-		-		0.28	(0.10 - 0.73)*

Abbreviations: STD = Sexually transmitted disease, OR = Odds ratio, CI = Confidence Interval, vs, versus.

* = Statistically significant at $p < 0.05$. - = Variable not significant in the model.

^aOverall model adjusted for: age, race, gender, live outside of city, getting to the STD clinic is easy, STD test clinics keep records confidential, more likely to get an STD test without genital exam, and insurance.

^bMale model adjusted for: age, race, live outside of city, getting to the STD clinic is easy, STD test clinics keep records confidential, more likely to get an STD test without genital exam, partner would blame you if you had a STD, and insurance.

^cFemale model adjusted for: age, race, live outside of city, getting to the STD clinic is easy, STD test clinics keep records confidential, would use a STD test at home if available, and insurance.

significant differences in delay in care-seeking for STDs were found. This is in contrast to many other studies exploring differences by gender that found symptomatic women tended to delay longer than symptomatic men [4, 5, 18], whereas few studies have failed to find significant differences [27].

Consistent with other studies, individuals with symptoms tended to delay longer than those without symptoms but who had been referred to be checked [23]. This is a perplexing aspect of STD care-seeking behavior, as people with symptoms may avoid care because they choose to wait and see if symptoms disappear, think the symptoms may be normal, try self-treatment, or may avoid care due to embarrassment or denial [5, 23]. In contrast, individuals without symptoms who are referred by a friend, sexual partner, or health care provider to get checked for an STD, may be more convinced to seek care quickly.

Home testing for STDs has been proposed as one method to avoid barriers of STD testing including self-testing strategies that use urine samples or self-collected vaginal swabs. We had hypothesized that persons who delayed seeking care at an STD clinic might be more likely to be interested in home testing. Although a majority of our participants indicated they would consider using an STD test at home if one were available, the fact that persons most interested in home testing or non-invasive testing were also less likely to delay seeking care suggests that individuals who are interested in getting tested more quickly would also be most likely to adapt novel means of testing. Perhaps some persons really wanted an STD test as quickly and easily as possible, whereas others with unusual symptoms or less obvious exposure to STDs may be more interested in a physical exam as part of their overall assessment. Thus, the data do not support conclusions that easier methods would improve testing among individuals who are already prone to delay, although further research is needed to confirm this finding.

Several limitations deserve mentioning. Our assessment of delay in seeking care was based on self-report and our measures of STD-related attitudes and beliefs were not from a validated scale. As study participants were recruited from

an STD clinic setting, results may not be generalizable to persons utilizing other sources of care or even to all STD clinics; however, STD clinics continue to be a primary focus of STD-related testing and care for high-risk populations and most barriers to care are likely to be similar. Furthermore, we were unable to distinguish those who were referred by a health care provider from those who were referred by a friend or colleague. Of note, nearly half of the participants in our study were Caucasian or white, perhaps due to the proximity of the STD clinic to several colleges and universities, although we did not find significant differences in delay according to race.

Persons were categorized by a 7-day delay interval to enhance comparability to other studies, although the selection of a specific cut point for delay is somewhat arbitrary and not based on specific clinical outcomes. We also analyzed the delay interval as a continuous variable and obtained similar results (data not shown). Due to the cross-sectional design, it is difficult to establish a temporal relationship between the associated factors and the outcome of delay. Thus, the possibility that delayed care-seeking resulted in the development of symptoms must also be considered. This is because we don't know when symptomatic persons acquired an infection. While a limitation of our research is that data from the study were collected ten years ago, they are still relevant today as the options for community-based STD testing and treatment have remained relatively unchanged over the past decade and very little new information on test-seeking behavior has emerged over the past decade.

In conclusion, this study is consistent with others that found both individual and structural factors to be associated with time to seek care for STDs. We found no significant differences in overall delay in seeking care between young men and women. Our findings suggest the use of interventions that improve access to clinics and testing options, encourage symptomatic persons to seek medical care more rapidly, and address concerns about stigma could help reduce the time to seek care for STDs among high-risk youth. In addition, our findings indicate health care providers

play an important role in ensuring at-risk patients seek care in a timely manner.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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