ORIGINAL ARTICLE

THE PEVALENCE OF SYMPTOMATIC SEXUALLY TRANSMITTED DISEASES AMONG REFUGEES IN ADDIS ABABA, ETHIOPIA

Asresash Siraw Dessiebele[1], Kefyalew Addis Alene[2], Abebaw Addis Gelagay[3], Yohannes Ayanaw Habitu[3], Medhanye Habtetsion Kidanie[4]*

ABSTRACT

Background: *Though refugees are prone to sexually transmitted diseases, little attention has been given to prevention programs in Ethiopia. Therefore, this study was conducted to assess the prevalence and associated factors of symptomatic sexually transmitted diseases among refugees in Addis Ababa.*
Methods: *This cross-sectional study was conducted on 379 refugees in Addis Ababa, from November to December 2015. The systematic random sampling technique was used to select study participants. Data were collected using a pretested, structured questionnaire, entered into Epi-info version 7, and analyzed using SPSS version 20. Bi-variable and Multivariable logistic regression models were employed to see the presence and strength of associations between the dependent and independent variables by computing odds ratios with 95% confidence intervals and p-value< 0.05.*
Results: *The overall prevalence of symptomatic sexually transmitted diseases was 34.6% (95%CI: 29.8%, 39.6%). Factors, like2-5 years stay in Eth., 2 – 5 (AOR=2.31, 95% CI; 1.22, 4.38), sexual violence (AOR=1.72: 95%CI; 1.01, 2.93), divorce (AOR=0.39: 95%CI; 0.16, 0.93), chewing Khat before sex(AOR=2.04: 95% CI; 1.16, 3.59),and not using condoms during sex (AOR=2.49, 95%CI: 1.47, 4.21) were significantly associated with the prevalence of symptomatic sexually transmitted diseases.*
Conclusion: *The prevalence of symptomatic sexually transmitted diseases among refugees was found to be high. Factors like duration of stay, sexual violence, divorce, khat chewing and not using condoms during sex were significantly associated with the disease. Therefore, special attention should be given to refuges with 2-5 years of stay in Ethiopia, sexual violence, widowed refugees, history of khat chewing before sex, not using condoms during sex to reduce the prevalence of SSTD in refugees.*

Key words: *Refugees, prevalence, sexually transmitted diseases, Addis Ababa, Ethiopia*

BACKGROUND

According to the United Nations Higher Commission for Refugees (UNHCR) report, 51.2 million individuals were forcibly displaced worldwide as a result of conflicts, generalized violence, or human right violations by the end of 2013(1). It has been estimated that roughly 40% of the UNHCR assisted refugee populations in Africa and 60% in Asia are within the most sexually-active age range(18–59 years), and are thus at the greatest risk of acquiring sexually transmitted diseases (STD)(1, 2).

Among refugees, people with different sexual experiences and history of STD live together, increasing the STD prevalence(3). In addition, many refugee situations are more crowded with low reproductive health service coverage, which in turn creates conditions that boost the risk of STD transmission(3). The disintegration of communities and family life in refugee situations also leads to the breakup of stable sexual relationships and the disruption of social norms governing sexual behaviour(4, 5). More sexual

[1]Ethiopian Orthodox Church Development and Inter Church Air Commission Refugee and Returnee Affairs Department, Addis Ababa, Ethiopia, [2] Epidemiology and Biostatistics Department, College of Medicine and Health Sciences, University of Gondar, [3] Reproductive Health Department, College of Medicine and Health Sciences, University of Gondar, [4]Ethiopian Public Health Institute, Addis Ababa, Ethiopia
Correspondence Author: *YohannesAyanawHabitu, Telephone No.: +251901460706, E-mail: yohaneshabitu@gmail.com*

crimes occur among refugee populations(5); moreover, sexual contact among refugee men and sex workers which contributes to the high prevalence of STD is more frequent(5). In Africa, highly transient and mobile populations are susceptible to sexual violence and non-condom use during sex, exposing them to STD(6).

More than one million people in the world acquire sexually transmitted infections (STI) every day, and an estimated 357 million new infections occur each year(2, 7). Sub-saharan Africa has more STD prevalence(59.1%) compared to other regions, like East Asia and the Pacificregion(6.5%) and North Africa and the Middle East(19.1%)(8, 9). The highest rates of STD prevalence were found among migrant applicants from the high prevalence areas of the world, reflecting the demographic profile of the source region(10). Besides, 1 out of 20 teenagers contract STD globally; some of the STD causes lifelong disabilities, like infertility(11).

Studies conducted at Dimma refugee settlement in southwest Ethiopia among Sudanese, Minnesota, Johannesburg and Rwanda's refugees showed the prevalence of STD was, 38, 1.8, 20.4, and 50%, respectively(12-15).

A study conducted on Sudanese refugees in Dimma refugee settlement in south west Ethiopia showed that contact with female sex workers was a predictor of STD(12)[5]. Studies conducted in Kenya and Uganda showed substance use was associated with STD(16)[15]. No condom use during sexual intercourse was another factor associated with SSTD(16-18).

Even though some countries established STD clinics in response to the increases in the trafficking of refugees(19, 20),currently studies that show the prevalence and associated factors of STDs among refuges are in short fall.

In Ethiopia, STD has been recognized among certain risk groups, such as commercial sex workers and truck drivers(21). Although the reporting system of STD is poor in the country(8), studies are also too limited to show the prevalence of SSTD among refugees. The refugee communities in Ethiopia may have risky sexual behaviours that expose them to STD, but studies conducted in the country did not consider these groups. Therefore, this study was conducted to assess the prevalence of symptomatic sexually transmitted diseases (SSTD) and their associated factors among refugees in Addis Ababa. The results of this study may help planners, decision makers, and other stakeholders working on refugees to take appropriate and timely interventions to reduce the magnitude of the problem.

METHODS

Study design and setting: An institution-based cross sectional study was conducted among refugees living in Addis Ababa, Ethiopia, from November to December 2015. Addis Ababa is the capital of Ethiopia with a population of 3,384,569 and annual growth rate of 3.8%(22). Administratively, the city is divided into 10 sub-cities, 36 districts and 116 kebeles (the smallest administrative unit in the country)(22). By the end of October 2015, there were 2,994 refugees from 18 nations(23). Most (99%) of the refugees came from three countries, namely Eritrea, Somalia, and South Sudan(23). Refugees in Addis Ababa live in different sub-cities assisted by the Ethiopian Orthodox Church Development and Inter-church Aid Commission Refugee and Returnee Affairs Department (EOC/DICAC-RRAD). Of the refugees, 2,178 were aged 15 years and above and live by renting houses(23).

Study population: All refugees living in Addis Ababa supported by EOC/DICAC-RRAD, and aged

15 years or above were our study population. Refugees who lived in Addis Ababa for less than six months were excluded.

Sample size and sampling procedure: The sample size of this study was determined using the single population proportion formula with the following assumptions: proportion of STD from a previous study 38.0%(12), 5% margin of error, and 95% confidence interval.

Considering a 5% non-response rate, the final sample size for this study was 380. The systematic random sampling technique was used to select study participants, using the list in the DICAC refugee centre as a sampling frame.

First the sampling interval was determined by taking the ratio of the sample size calculated to the total number of refugees i.e., 380/2,994= 12, which is taken as the sampling interval. Next, to determine the number of the first respondent, we chose by blindly picking one out of 12 blindly pieced papers and number "8" was selected.

So, every individual starting from the number "8" was picked using 12 as a sampling interval until the calculated size (380)was reached. If the selected individual did not volunteer or was missing, the individual next was included in.
Data were gathered when the respondents collected their clothing allowance, monthly assistances and attended validation assessments at the center.

Operational definitions

Refugee:A displaced person who has been forced to cross national boundaries and cannot return home safely and lives in another country, in this study, Ethiopia, Addis Ababa.

Refugee camp:A temporary settlement built to receive refugees and people in refugee-like situations.

Symptomatic sexually transmitted diseases (SSTD): When an individual has one or more symptoms of sexually transmitted diseases, like genital ulceration, inguinal bubo, vaginal discharge (female), lower abdominal pain (female), urethral discharge (male), and scrotal swelling (male) during the study.

Prevalence of SSTD: The presence of one or more symptom/s of sexually transmitted diseases in the past one year that was confirmed by the investigators based on the response of the participants.

Data collection instrument and procedures: The data collection instrument consisted of different questions grouped under three major sections. The first section included socio-demographic questions; section two included sexual and other behavioural questions, and the third involved questions on the signs and symptoms of STDs previously encountered. The questionnaire was prepared in English and translated to Amharic (local language) and back to English to cheek for consistency. The questionnaire was pretested but not validated. Five experienced nurses with Bachelor's degrees collected the data; one expert with MSc in public health (experienced in research data collection supervision) was employed as supervisor, and seven translators communicated with refugees who could not speak Amharic.

Data quality control: The questionnaire was pretested on 20 individuals (5% of the sample) out of refugees supported by the Jesuit Refugee centre, and appropriate corrections were made to make it understandable to respondents.

Thus, confusing words were replaced by clear and easily understandable ones; the order of the questions was modified to make the logical flow of questions easy and to remove some redundant items. Two days' training was given to data collectors and the

supervisor before data collection. The content of the training included respondents' rights to participate or not, consent and assent of respondents aged below 18 years, the need to respect respondents' ideas, the contents of the questionnaire and how to collect data.

The supervisor was also trained on how to monitor the day to day data collection, confidentiality of responses and how to communicate with us daily. After obtaining the consent, data were collected using interviewer administered questions. The collected data were checked daily for completeness.

Data processing and analysis: Data were coded, entered into Epi-info version 7 and exported to Statistical Package for Social Sciences (SPSS) version 20 for analysis. Bi-variable and Multivariable logistic regression models were employed to see the presence and strength of association between the dependent and independent variables by computing odds ratios with a 95% confidence intervals and p-values. First, variables in the bi-variable model with p-value of less than 0.2(10 variables) were selected, and all variables fulfilling this criteria were fitted into the final multivariable logistic regression model. Then, variables with less than 0.05 P-values in the multivariate logistic regression analysis were considered as statistically significant.

Ethics approval and consent to participate: Ethical clearance was obtained from Institutional Review Board (IRB) of the Institute of Public Health, the University of Gondar, Ethiopia (IRB no.IPH/2674/02/08). Permission letter was obtained from the Administration of Refugee and Returnee Affairs (ARRA), and the Ethiopian Orthodox Church (EOC)/ Development and Inter-church Aid Commission - Refugee and Returnee Affairs Department (DICAC-RRAD) office.

Before identifying individual study participants, relevant unit heads and service providers were contacted for permission and discussion of points of relevance to the study. Each participant was informed about the purpose of the study, the importance of participation, and the possibility of withdrawing at any time if any discomfort was felt. From participants aged 18 years and above, oral and written consent was obtained prior to data collection.

Moreover, we obtained parental consent in addition to individual assent for participants aged below 18 years. Confidentiality was maintained by avoiding personal identifiers and keeping the data locked.

RESULTS

Socio-demographic characteristics: A total of 379 refugees participated in the study with a response rate of 99.7%. Almost half of the participants (52.5%) were female and around one third (37.5%) were single. Nearly one-third of the participants (31.1%) were from Somalia and 25.9% Eritrea. The majority (88.4%) of the participants were economically supported by the organization and around one fifth (20.6%) had lived in Ethiopia for less than one year (Table 1).

Table 1: Socio-demographic Characteristics of Refugees in Addis Ababa, Nov-Dec 2015

Variable	Category	Frequency	Percent
Sex	Male	180	47.5
	Female	199	52.5
Age of respondents	15-24	88	23.2
	25-34	122	32.2
	35-44	108	28.5
	≥45	61	16.1
Religion	Orthodox	57	15.0
	Muslim	179	47.2
	Protestant	99	26.1
	Catholic	34	9.0
	Others*	10	2.6
Nationality	Somalia	118	31.1
	Eritrean	98	25.9
	Congolese	44	11.6
	Sudanese	58	15.3
	Others**	61	16.1
Living condition during research	With close Family	165	43.5
	With Relatives	49	12.9
	With other than your relatives	66	17.4
	Alone	99	26.1
Marital status	Married	128	33.8
	Divorced	71	18.7
	Single	142	37.5
	Widowed	38	10.0
Educational level	Illiterate	98	25.9
	Can read and write	98	25.9
	1-8 grade	66	17.4
	9-12 grade	86	22.7
	Technical/vocational & above	31	8.2
Occupational status	Have no job	329	86.8
	Student	42	11.1
	Have job	8	2.1
Main source of income	Dependent on their family	44	11.6
	Supported by organization	335	88.4
Duration of living in Ethiopia as refugee (in years)	<=1year	78	20.6
	>1-5 year	214	56.5
	>5	87	23.0

**Adventist, One God in the world, **Burundi, Egypt, Yemeni, Afghanistan, Syria, Rwanda, Djibouti, Cuba, Uganda, Kenya, Tanzania*

Prevalence of symptomatic STD among refugees in Addis Ababa: The overall prevalence of symptomatic SSTD among urban refugees in Addis Ababa was 34.6% (95% CI: 29.8%, 39.6%), 36.2 and 32.8% among female and male refugees, respectively. The prevalence among Sudanese, Somali, and Eritrean refugees was 39.7, 4.0, and 37.8%, respectively.

The most common manifestations of SSTD among female participants were lower abdominal pain (24.1%), followed by abnormal vaginal discharge (22.1%), while urethral discharge (20.0%) and inguinal bubo (17.8%) were common among male participants (Table 2).

Table 2: SSTD manifestations among refugees in Addis Ababa, November-December 2015

Women				Men			
Variable	**Category**	**Frequency**	**%**	**Variable**	**Category**	**Frequency**	**%**
Abnormal Vaginal Discharge	Yes	44	22.1	**Urethral Discharge**	Yes	36	20.0
	No	155	77.9		No	144	80.0
Genital Ulcer	Yes	9	4.5	**Genital Ulcers**	Yes	15	8.3
	No	190	95.5		No	165	91.7
Inguinal Bubo	Yes	25	12.6	**Inguinal Bubo**	Yes	32	17.8
	No	174	87.4		No	148	82.2
Lower Abdominal Pain	Yes	48	24.1	**Scrotal Swelling**	Yes	23	12.8
	No	151	75.9		No	157	87.2

Factors associated with symptomatic STD: The study showed that divorce, duration of stay in Ethiopia, khat chewing, no condom use and sexual violence were significantly associated with SSTD.

Participants who had history of divorce were 61% (AOR= 0.39; 95% CI: 0.16, 0.93) less likely to have SSTD compared to widowed ones. Furthermore, refugees who lived in Ethiopia for two to five years were 2.31times (AOR= 2.31; 95% CI: 1.22, 4.38) more likely to have SSTD compared to those who lived for more than 5years. Participants who had history of khat chewing before sex were 2.04times (AOR =2.04; 95% CI: 1.16, 3.59) more likely to have SSTD compared to those who did not have such history. Participants who did not use condoms persistently during sexual intercourse were 2.49 times (AOR= 2.49; 95% CI: 1.47, 4.21) more likely to have SSTD than participants who used condoms persistently. Respondents who had history of sexual violence were 1.72 times (AOR 1.72; 95% CI: 1.12, 2.93) more likely to be exposed to SSTD than those who did not have history of sexual violence (Table 3).

Table 3: Bi-variable and multivariable analysis showing factors associated with SSTD among refugees in Addis Ababa, Ethiopia 2015

Variable	Category	SSTD		COR(95%CI)	AOR(95%CI)
		Yes, n(%)	No, n(%)		
Age	15-24	19(5.0)	69(18.2)	1	1
	25-34	48(12.7)	74(19.5)	2.36(1.26, 4.23)**	1.81(0.90, 3.65)
	35-44	42(11.1)	66(17.4)	2.31(1.22, 4.38)*	1.69(0.76, 3.74)
	≥45	22(10.3)	39(5.8)	2.05(1.99, 4.25)	1.44(0.55, 3.77)
Marital status	Married	42(11.1)	86 (22.7)	0.44(0.21, 0.92)*	0.71(0.29, 1.75)
	Single	30(7.9)	41(10.8)	0.66(0.30, 0.85)	0.62(0.24, 1.57)
	Divorced	39(10.3)	103(27.2)	0.34(0.16, 0.71)**	**0.39(0.16, 0.93)***
	Widowed	20(5.3)	18(4.7)	1	1
Educational status	Illiterate	40(10.6)	58(15.3)	1	1
	Can read & Write	33(8.7)	65(17.2)	0.74(0.41,0.92)	0.65(0.31, 1.36)
	1-8 grade	21(5.5)	45(11.9)	0.68(0.35, 0.75)	0.67(0.28, 1.59)
	9-12 grade	30(7.9)	56(14.8)	0.78(0.43, 0.90)	1.06(0.46, 2.41)
	Certificate & above	7(1.8)	24(6.3)	0.42(0.17, 0.68)	0.43(0.14,1.29)
Duration of stay in Ethiopia (in years)	≤1	22(5.8)	56(14.8)	0.87(0.45, 0.96)	1.25(0.56, 2.82)
	2-5	82(21.6)	132(34.8)	1.38(1.01, 2.35)	**2.31(1.22, 4.38)***
	>5	27(7.1)	60(15.8)	1	1
Drinking alcohol before sex	Yes	96(24.3)	156(41.2)	1.62(1.20, 2.58)*	1.12(0.65, 1.94)
	No	35(9.2)	92(25.3)	1	1
Chat chewing before sex	Yes	100(26.4)	147(38.8)	2.22(1.38, 3.57)**	**2.04(1.16, 3.59)***
	No	31(8.2)	101(26.6)	1	1
Condom use	Yes	49(12.9)	139(36.7)	1	1
	No	82(21.6)	109(28.8)	2.13(1.38, 3.29)***	**2.49(1.47, 4.21)*****
History of sexual violence	Yes	89(23.5)	140(36.9)	1.64(1.21, 2.55)*	**1.72(1.12, 2.93)***
	No	42(11.1)	108(28.5)	1	1

**P-value ≤0.05 **P-value ≤0.01 ***p-value≤0.001*

DISCUSSION

Sexually transmitted diseases have short and long term health effects on the general public. Chronic pelvic inflammatory diseases in females and infertility in both sexes are amongst the chronic consequences the diseases(2,7,24). Moreover, the consequences in turn have social (divorce) and economic impacts on individuals in particular and on families and communities in general.

This study clearly revealed the high prevalence of symptomatic sexually transmitted diseases among refugees. Slightly more than a third of the participants had symptomatic STD in the past one year before data collection. This result was in line with that of a study conducted on Sudanese refugees (at Dimma refugee settlement) where the prevalence was 38% among male participants and 31% among commercial sex workers(12). However, the finding was higher than those of studies conducted on Minnesota refugees where the prevalence of STD was 1.8%(7), Johannesburg (20.4%)(14), and Debremarkos (26.7%)(25).

The possible explanation for the differences might be variations in some methodological issues between the current work and the other studies. For example, in Minnesota, the etiological diagnostic approach was used in addition to client self-report; so, the prevalence was lower than ours because the diagnostic accuracy was more specific when a combination of two diagnostic methods was used. In the present study only participant self-report was used. Moreover, in Johannesburg, adolescents in the age group of 15 to 19 years were not included. The justifications for these are that adolescents usually engage in casual sex due to peer influence(26) and perform sex under the influence of substances and develop risky sexual behaviours(27), which expose them more STDs(28, 29). On the other hand, they are in the age of experimenting sex(30), and lack experience of using protective methods, like condoms(28, 29).

Moreover, evidences show that adolescents' reproductive organs, vaginal and cervical epithelium are immature(31); so, during sex there could be lacerations of the genital tract that act as entry points for agents causing STDs(31).

Besides, as adolecents, they are sexually active(27-29), and biologically liable to STD)(30).Hence, the prevalence in the current study is higher than that in Johannesburg. The possible justifications why the result of our study was higher than that of Debremarkos were differences in the methodologies employed. The Debremarkos study was a community-based survey; ours was an institution-based study in which case more STD cases presented to the institution.

To the contrary, this finding is lower than that of vaginitis, caused by Neisseria gonorrhoeae and Trichomonas vaginalis according to a study conducted on Rwanda's refugee mothers attending an antenatal clinic and noted a prevalence of 50.0%(11).The possible explanation might be variations in the selection criteria of study participants. In Rwanda's study, only mothers attending the ANC clinic were included. Thus, mothers who had complaints of STD preferred the ANC clinic. So, the prevalence of vaginitis may be higher. In this study, all refugees were included.

In this study, divorcees had statistically significant association with symptomatic sexually transmitted diseases. Divorced participants were less likely to have SSTD compared to widowed ones. This finding was supported by a similar study done among Sudanese refugees(32). That the idea of "divorce is logically a risk factor for STI" may not be necessarily

true. Sometimes, cases might be different. Our justification for this is that many of the divorced women might be sexually inactive due to social reasons; for example, other male refugees might be afraid of having sex with divorced women while living at the same center with a former partner. This might be due to the existence of poor sexual interest among divorced individuals because of the social and psychological effects of divorce(33).

Study participants who stayed in Ethiopia as refugees for two to five years were more likely to have SSTD compared to those who lived for 6 years or more. This finding is supported by a study conducted among North Korean refugees in South Korea(34). This might be due to the fact that as the duration of stay in a refugee center increases, people may have enough knowledge of STDs prevention mechanisms, like condom use during sexual intercourse(34, 35).

Participants who had history of Khat chewing were more likely to be exposed to SSTD compared to those without such history. That was supported by a study conducted in Kenya and Uganda, a broad survey approach where Khat was associated with changes in sexual performance and with uncontrolled sexual behaviour that might have exposed them to different STD(36).In addition, the finding was supported by a study conducted in Gore town, Oromia, Ethiopia, where Khat chewing had a significant association with SSTD(37). This can be explained by the fact that substance use, like chewing khat, is associated with increased risk for risky sexual practices, like performing sex without condoms, engaging in casual sex all of which expose individuals to STDs (38, 39).

Participants who had history of no condom use during sex were more likely to develop SSTD compared to their counterparts. Various investigations showed similar relations between no condom use during sex and the prevalence of STDs (17, 18, 40). It is clear that persistent condom use prevents STDs(41, 42).

Refugees who had history of sexual violence were nearly two times more likely to be exposed to SSTD compared to those who did not have history of sexual violence. This result is similar to that of a study conducted in Johannesburg, where respondents with history of gender based violence had two times more risk for exposure to STD(14). Also another Meta-analysis study showed that the prevalence of STD is more among participants who had history of sexual violence(43). The possible explanation might be that respondents who had history of sexual violence might not have the chance to negotiate on safer sexual practices. So, they might not use condoms and were therefore more exposed to STD compared to respondents who had sex based on consent, in which case they might have a better chance to negotiate safer sexual practices.

One of the limitations of this study was the effect of social desirability bias as the issue was too sensitive to investigate using an interviewer administered questionnaire.

To minimize the effect of this bias, we recruited data collectors who were not familiar with the participants so that respondents might provide information without any fear. We adopted and used the tool developed by WHO to assess the presence or absence of STIs among people. The National Guidelines for the Management of Sexually Transmitted Infections using the Syndromic Management Approach developed by the year 2015 was also adopted from the WHO standard.

CONCLUSION

In this study, the prevalence of Symptomatic Sexually Transmitted Diseases among refugees was high.

Factors significantly associated with SSTD were participant length of stay from two to five years in Ethiopia, divorce, sexual violence, widowed hood, Khat chewing before sex and not using condoms during sex. Therefore, special attention should be given to refugees with 2-5 years of stay in Ethiopia, victims of sexual violence, khat chewers before sex and non-condom users during sex to reduce the prevalence of SSTD among refugees.

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Competing interests: The authors declare that they have no competing interests.

Authors' contributions: ASD conceived the study, developed the tool, coordinated the data collection activity, carried out the statistical analysis and drafted the manuscript. ASD, KAA, and AAG participated in the design of the study, tool development, data collection supervision, statistical analysis and drafting and reviewing the manuscript. YAH and NHK participated in the statistical analysis, and reviewing and editing the manuscript. All authors read and approved the final manuscript.

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