

ORIGINAL ARTICLE

UNSAFE SEXUAL PRACTICE AMONG CROSS-BORDER COMMERCIAL SEX WORKERS IN METTEMA YOHANNIS, NORTHWEST ETHIOPIA.

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ABSTRACT

**Background:** Commercial sex work is an occupation that makes its workers highly vulnerable to sexually transmitted infections (STIs), including HIV especially, in border areas. Currently, there is lack of information on unsafe sexual practice among cross-border commercial sex workers (CSWs).

**Objective:** to assess unsafe sexual practices and associated factors among cross-border CSWs in Mettema Yohannis, northwest Ethiopia.

**Method:** A cross-sectional study triangulated with qualitative design was used. For the quantitative study, data were collected from a systematically selected sample of 474 CSWs. Data were analyzed using the global (sexual experiences in the last twelve months) and situational analyses (based on last sex). The SPSS version 16.0 statistical software with multiple logistic regression was used for analyses. For the qualitative component, seventeen in-depth interviews and four focus group discussions were carried out.

**Result:** The prevalence of unsafe sex during the last sexual intercourse, last seven days and last twelve months, were 21.5%, 31.1%, 63.9%, respectively. Sex workers were more likely to practice unsafe sex with Sudanese clients (OR=6.4, 95% CI: 3.20, 12.78) and truck drivers (OR = 4.89, 95%CI: 1.26, 18.90). Familiarization with sexual clients was the strongest and consistently associated factor for unsafe sex both in global and situational analyses: OR=16.76, 95%CI 8.24, 34.08 and OR=19.49, 95%CI 6.44, 58.98, respectively. Mobile CSWs (OR =6.12 95%CI: 1.11, 33.64), working in rental houses (OR = 3.72 95% CI 1.25, 11.02), duration of exposure to sex work, educational level, monthly income and problem drinking were also significantly associated with unsafe sex.

**Conclusion:** There was a high prevalence of unsafe sexual practice among cross border CSWs. It is recommend that the Government of Ethiopia in collaboration with other organizations develop and launch mobility friendly STI/HIV intervention programs to alleviate the vulnerability of CSWs in cross-border areas.

**Key words:** unsafe sexual practice, cross boarder commercial sex.

INTRODUCTION

HIV/AIDS is a major health problem affecting 33.4 million people worldwide in 2009. The disease primarily affects sub-Saharan Africa which accounts for two-thirds, of the epidemic. In Ethiopia, there are about 1.1 million people living with the virus. The situation is the worst in cross-border communities for multiple and complex reasons (1, 2).

Border areas host migrants from different regions and countries with different backgrounds and sexual experiences who are highly vulnerable to STIs/HIV. The areas may not get as many health care services from responsible organizations as do the central districts. This problem is comparatively higher in African borders where health facilities and infrastructure

are not well established, and some of the regions and boundaries are characterized by unrest. People in such areas are also vulnerable to substance abuse (3-6).

Commercial sex workers (CSWs) are common in border areas and concurrently serve different types of people traveling through or settling there. This is true because a significant number of men (37.4%) have sexual practices with female partners who are neither spouses nor cohabiting, and of these nearly 1% of sexual acts are with CSWs who often have a high prevalence of HIV/AIDS (1, 7, 8).

Globally, unsafe sexual practices are the most common factors for STIs, including HIV/AIDS. Unsafe sexual practices mainly include anal, unprotected vaginal, and oral intercourses (9) with multiple sexual partners. It is also indicated that unprotected

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vaginal intercourse is the most common mode of transmission of HIV in Ethiopia (7). According to a study done on CSWs in seven urban centers in Ethiopia, the prevalence of unprotected sex was 12% (10). Another study conducted among CSWs in three small towns in northwest Ethiopia (Koladiba, Chua-hit, and Dabat) indicated that only 32.5% of the respondents used condoms of which, 12.8% used them consistently (11).

Although there are different studies on CSWs regarding risky sexual practices in Ethiopia, they were not done in such cross-border areas where the context is different from that of central districts (10, 11.), and the studies have been only descriptive (8). Also they did not address the different types of unsafe sexual practices, like anal intercourse, which could be easily adopted in such cross-border areas.

The aim of this study is to examine the prevalence of unsafe sexual practices among CSWs and factors affecting the practices at the cross-border town of Mettema Yohannis. The study emphasizes two types of unsafe sex, anal and unprotected vaginal intercourses.

## **METHODS**

A quantitative cross-sectional study triangulated with a qualitative study design was used to assess unsafe sexual practice of CSWs and factors influencing it. The qualitative approach used was phenomenology, which includes eliciting the perceptions or experiences of informants or discussants about the practices. The study was carried out from July to August 2010 at Mettema Yohannis, northwest Ethiopia, just at the point where the “Cairo-Gaborane Highway” enters Ethiopia. The town has a population of 10,171 (12) and 1,200 CSWs as obtained from the town administration.

The sample size was estimated by applying the single population proportion formula. A confidence level of 95% ( $Z=1.96$ ), margin of error of 3%, 12% proportion of unprotected sexual practice (10), and 10% of non-response rate which gave the final sample size of 502 was taken. Participants were selected by systematic random sampling using a sampling interval of two.

During data collection, a guide assigned by the town officials, helped data collectors to be accepted by CSWs. Data collectors moved from the western side of the town to its eastern part, block by block, assessing each house/establishment where CSWs could be traced. However, 28 CSWs wouldn't participate (for

reasons not related to the study), leaving the response rate to be 94.4%.

Six experienced female data collectors with diplomas in nursing and one experienced supervisor with a BSc degree recruited from outside the study area were used to collect the quantitative data. Training was given for two days, including a field exercise which was done in Gondar town, Enkoye Mesk. Face to face interviews with a pretested and structured questionnaire were conducted. During the actual data collection, onsite supervision was carried out by the supervisor and the investigators.

Qualitative data collection was completed after seventeen in depth interviews and four Focus Group Discussions (FGDs). The number of participants in each FDG was 6. Qualitative data collection was stopped after saturation was reached. The participants of the in-depth interviews were hotel/bar owners, brokers (negotiators of CSWs and their clients), kebele administrative bodies, CSWs, policemen, militias, health professionals, orphans and the staff of the Women's Affairs Office. Similar categories of participants were used for the FGDs. The investigator moderated the FGD while his assistant took notes. A standardized interview or FGD guide was used and data were captured using notes and tape recording for both in-depth interviews and FGDs.

The quantitative data analyses were conducted by global (last twelve months) and situational (last sex) analyses and descriptive statistics (last seven days). The first two approaches were analytical while the third (the last seven days) was totally descriptive. To keep the context of each analytic approach, the global and situational analyses used the same dependent variable, unsafe sexual practice but different independent variables. The independent variables for the global analysis were socio-demographic variables, frequency of alcohol drinking, problem drinking, other substances used, knowledge about unsafe sex, attitude about unsafe sex, predominant type of sexual client (classified by mobility status), and familiarization (Table 1). The situational analysis included influence of incentives (whether there was influence of attractive/greater fees by last sexual client to initiate unsafe sex), alcohol use (before last sex), substance use (before last sex), the sexual client type for that particular sexual act, and familiarization (whether last sex was with a familiarized client or not).

Data entry and analyses were conducted using SPSS version 16. It was confirmed that the necessary as-

assumptions to use logistic regression were satisfied using the Hosmer and Lemeshow goodness of fit test and the ratio of sample size to the number of independent variables. P-values less than 0.05 were considered statistically significant. Important variables of the study are defined in Table 1.

**Table 1: Definitions of variables or terms**

<b>Defined variables/terms</b>	<b>Definitions of variables or terms</b>
<b>Unsafe sexual practice</b>	A sexual act by CSW was taken as unsafe if it was either anal intercourse or unprotected vaginal intercourse
<b>Problem drinking</b>	A CSW was categorized as having problem drinking if she gave at least one positive response to any of the questions: (a) Have you ever thought you should Cut down on your drinking, (b) Have you ever been Annoyed by other people's criticism of your drinking? (c) Have you ever felt Guilty about your drinking, (d) Have you ever had an Early morning drinking (eye opener) to steady your nerve? By taking the first letter of the words: Cut, Annoyed, Guilty, and Early (each of them in one of the above four questions), we could get CAGE, and as a result, these questions are usually called CAGE questions (10, 13).
<b>Familiarization</b>	A CSW is familiarized with a client if she responded positively at least to one of the "5F" questions: Is there a person that: Frequently comes to you? You serve for Free? One of you or both have Fallen in love? Furnishes you with gifts and equipment? Has been your boy Friend? It was compiled from the qualitative study and other references (14-16).

Ethical clearance was obtained from the Institutional Review Board of the University of Gondar and permission was obtained from the local administration. Informed consent was obtained from the interviewee and FGD participants. Participants were informed that they had the right to withdraw from the study. Confidentiality of data was maintained through anonymous questionnaire and guides. Participants

were later counseled by health professionals to reduce risky sexual behavior.

## RESULTS

A total of 474 female CSWs were involved in the study. The average mean age was  $21.9 \pm 4.1$ , ranging from 15 to 38 years. Four hundred and fifty-four (95.78%) of the CSWs were Orthodox Christians, most of them (40.7%) illiterate. A significantly high number of the CSWs (56.54) worked in rental dwellings. For details of socio-demographic characteristics refer Table 2.

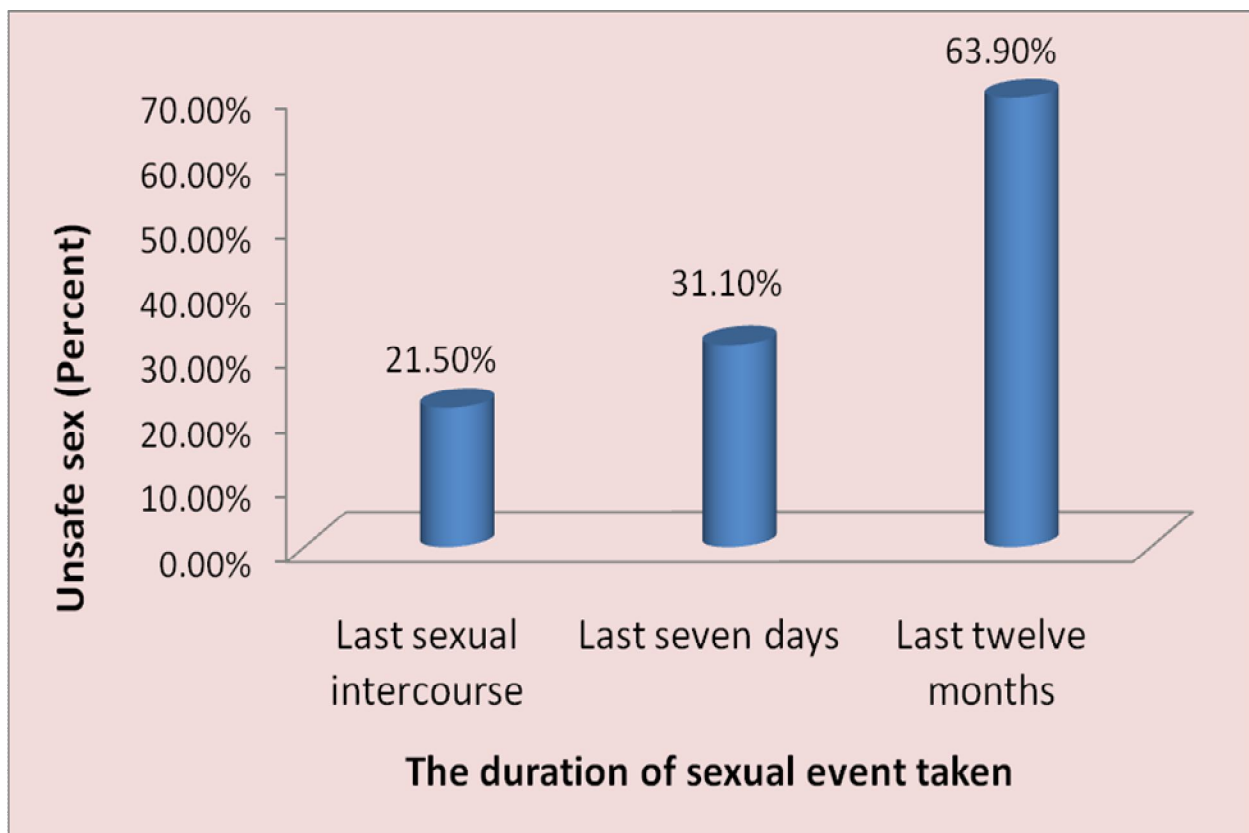
**Table-2: Socio-demographic characteristics of CSWs, Mettema Yohannis, northwest Ethiopia 2010.**

<b>Characteristics</b>	<b>Number (%)</b>
<b>Age(years)</b>	
15-19	148 (31.22)
20-29	297 (62.66)
30-39	29 (6.12)
<b>Ethnicity</b>	
Amhara	404 (85.23)
Tigrie	54 (11.39)
Oromo, SNNP and others	16 (3.38)
<b>Religion</b>	
Orthodox	454 (95.78)
Muslim	18 (3.80)
Protestant & Catholic	2(0.42)
<b>Previous marital status</b>	
Never married	209 (44.09)
Divorced	254 (53.59)
Widowed/separated	11 (2.32)
<b>Educational level</b>	
Illiterate	193 (40.72)
Primary education	117 (24.68)
Secondary and above	164(34.60)
<b>Former place of residence</b>	
Urban	328 (69.20)
Rural	139 (29.30)
Foreign (Sudan)	7 (1.50)
<b>Work place of the CSWs</b>	
Working in one's own home	32 (6.75)
Work in rental home	268 (56.54)
Work in Bar/Hotel	156(32.91)
Mobile CSW	18(3.80)
<b>Monthly income (birr)</b>	
300-800	84(17.72)
801-1500	190 (40.10)
1501-2500	171 (36.08)
2501-7,317	29 (6.12)
<b>Total</b>	<b>474 (100)</b>

The CSWs stated that they came to the border area either to find jobs other than commercial sex (73.8%) or to go abroad (12.8%); in both cases, most of them reported that they had been misled by illegal brokers who brought them to the border area. Once they came to the area, the problem of survival or poverty was the predominant reason why women joined the commercial sex work (54.2%) followed by peer pressure (21.7%).

Figure 1 shows quantitatively the relative size, trend and consistency of the prevalence of unsafe sexual practice during the last sexual intercourse, last seven days and last twelve months.

This figure shows the high prevalence of unsafe sex across all frames of time reference. All informants and discussants confirmed this fact reporting a low utilization rate of condoms in the town even though they were available for free. They also emphasized that there was variation in condom utilization among different categories of clients. Accordingly, it was almost universally perceived that the Sudanese clients were the least users of condoms. Farm owners and import exporters (both from highland areas), rich men, truckers, married people, and salogs (permanent agricultural laborers) were also less likely to use condom while gofers (seasonal agricultural laborers from the highland area) were more likely to use them.



**Figure 1: Unsafe sexual practices during the last sexual intercourse, last seven days and last twelve months**

“... As a broker, when I raise the issue of condom, the Sudanese usually repeat their usual proverb **“I need leham belham”** (**“leham beleham”** = *sigan besiga* = bare vagina with bare penis).” (informant broker-2)

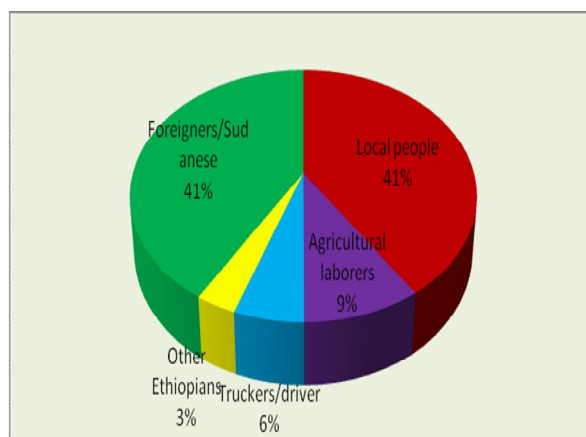
In the global analysis, 196(41.4%) of the CSWs said that the Sudanese were their predominant sexual clients. Another 155(32.7%) CSWs mentioned local people as their predominant sexual clients (table 3).

However, in the situational analysis 191(40.3%) CSWs reported their last sex was with local people, while only 153 (32.3%) CSWs said their last sex was with a Sudanese client (Table 5). From the assessment of last seven days, both Sudanese and local people were reported as almost equally important clients for CSWs (Figure-2).

**Table 3: Unsafe sexual practice by some socio-demographic variables during the last 12 months, Mettema Yohannis, northwest Ethiopia, 2010.**

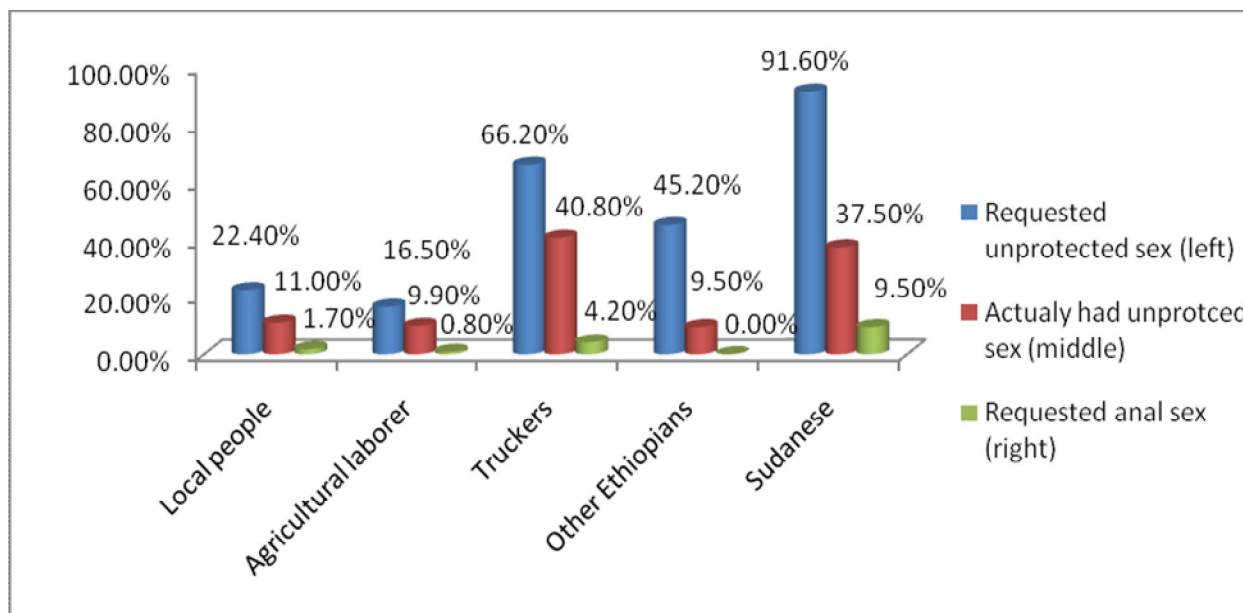
Characteristics	Number (Total n=474)	Unsafe sex Number (%)
<b>Duration in commercial sex work</b>		
Less than 6 months	112	52(46.4)
6 to 11 months	105	60(57.1)
12 to 23 months	119	79(66.4)
24 to 35 months	70	55(78.6)
3 or more years	68	57(83.8)
<b>Work place of CSWs</b>		
One's own home	32	19(59.4)
Rental house	268	210 (78.4)
Hotel/bar	156	60(38.5)
Mobile sex worker	18	14(77.8)
<b>Predominant type of sexual client</b>		
Local people	155	75(48.4)
Agricultural laborers	93	40(43.0)
Truckers/drivers	21	15(71.4)
Other Ethiopians	9	7(77.8)
Sudanese	196	166 (84.7)
<b>Familiarization</b>		
Absent	262	108 (41.2)
Present	212	195 (92.0)

Figure 2 represents data from the last seven days showing the proportion of sexual clients served. Of all sexual clients served, about 536(41.40%) were Sudanese and 527(40.70%) were local people.



**Figure 2: Proportion of sexual clients of CSWs by their mobility status**

Based on the assessment of “last seven days”, the likelihood of requesting CSWs for unprotected sex was highest for Sudanese clients (91.6%) followed by truckers/drivers (66.2%) (Figure 3). However, the proportion of clients who had unprotected sex was highest for truckers/drivers (40.8%) followed by Sudanese clients (37.0%). Sudanese clients were also more likely to request CSWs for anal sex (9.5%), followed by truckers/drivers (4.2%). However, no anal intercourse was reported during the last 7 days.



**Figure 3: The last seven days assessment on different types of sexual clients**

Informants and discussants indicated that Sudanese clients, orphans, a few CSWs, and a few Ethiopians who had grew up or lived long abroad were known to practice anal intercourse. Even though its prevalence was minimal at that time, informants and discussants, from their perceptions and observations of its trend, held that anal sex potentially had a dangerous trend of rising. They also stated that, some CSWs were using it in place of contraceptives. A few of our key informants also told us their own experiences of the practice.

An orphan woman who was 17 said that *“One day a Sudanese called me to help him with some work in his shop. Soon, I realized that I was already cheated when he did anal sex with me ...There after, I used to exercise it for money though rarely.”*

According to the quantitative study, the influence of incentives (greater fees) did not have an impact on practicing unsafe sex. However, the qualitative study showed us the other face of the situation.

In this regard, informants emphasized that because of poverty some CSWs would be involved in unsafe sex for money to cover their expenses. There are also CSWs who trade unsafe sex for more fees.

A broker explained the demand for unique services saying, *“I remember the competition made to win a bid of having unprotected sex with a virgin girl who was to begin commercial sex work. A rich sesame farm owner won the bid with Birr 1,500.00 for a single night. ...”*

Attempts were made to assess the degree of relationship between fifteen different socio-demographic/behavioral variables and unsafe sexual practice. Each variable was used in the bi-variate global analysis. However, five variables (early marital status, religion, knowledge about unsafe sex, attitude about unsafe sex, and other substance use) were excluded from the multi-variate global analysis due to nonsignificance ( $p > 0.2$ ) (table 4).

In the multi-variate global analysis, monthly income, educational level, duration of exposure to sex work, problem drinking, work place of CSWs, predominant type of sexual client and client familiarization were found to be significant and independently associated factors of unsafe sex.

CSWs whose partners had completed secondary school and above were about 3 times less likely to practice unsafe sex as compared to their illiterate

counterparts (OR=0.37, 95% CI 0.19, 0.73). On the other hand, those with a monthly income of >2500 and were sex workers for more than 3 years, were 5 and 5.5 times more likely to practice unsafe sex, respectively. CSWs engaged in mobile sex work and had predominantly Sudanese clients were 6 and 6.4 times more likely to have unsafe sexual practice, (OR=6.12, 95% CI 1.11,33.64) and (OR=6.40, 95% CI 3.20, 12.78), respectively. Having familiarized clients makes CSWs almost 17 times more likely to be engaged in unsafe sexual practice as compared to those without familiar clients (OR=16.76, 95% CI 8.24, 34.08).

To see the impact of situations immediately prior to last sex on its safeness, a situational analysis was made with the advantage of temporal relationship and minimal recall bias. Therefore, of the five independent variables entertained in the bi-variate situational analysis, influence of incentives was excluded from the multi-variate situational analysis due to its statistical non-significance in the bi-variate analysis.

Familiarization and the type of sexual client were important variables for unsafe sex both in the global and situational analysis. So their impact on unsafe sex was consistent (Table 5). Accordingly, CSWs who reported their last sex with clients they were familiarized with, were 19.49 times more likely to practice unsafe sex compared to CSWs who reported their last sex with unfamiliar clients. Similarly, CSWs who reported their last sex with Sudanese or truckers/drivers were almost four times more likely to practice unsafe sex compared to CSWs who reported their last sex with local people.

Similarly, agricultural laborers (both salogs and gofers) were not found to be different from local people in practicing unsafe sex both in the global and situational analysis. However, client categorization like “other Ethiopians” was significantly and independently associated with unsafe sex in the situational analysis, but not in the global analysis

**Table 4: Correlates of unsafe sexual practices during the last twelve months among cross border CSWs, Mettema Yohannis, Northwest Ethiopia, 2010.**

Characteristics	Unsafe sex		Crude OR (95% CI)	Adjusted OR (95% CI)	P- Value
	Yes	No			
<b>Age (years)</b>					<b><u>0.340</u></b>
15-19	84	64	1.0	1.0	
20-29	201	96	1.60 (1.06, 2.39)	1.32 (0.73, 2.41)	0.362
30-39	18	11	1.25 (0.55, 2.82)	0.55(0.14, 2.20)	0.395
<b>Educational level</b>					<b><u>0.002</u></b>
Not literate	132	61	1.0	1.0	
Primary education	87	30	1.34 (0.80, 2.40)	1.26(0.60, 2.62)	0.544
Secondary and above	84	80	0.49 (0.32, 0.75)	0.37(0.19, 0.73)	0.004
<b>Ethnicity</b>					
Amhara	264	140	1.0	1.0	
Tigre, Oromo, SNNP & others	39	31	0.67 (0.40, 1.12)	0.84 (0.37, 1.92)	0.676
<b>Monthly income</b>					<b><u>0.025</u></b>
300- 800 Birr	46	38	1.0	1.0	
801- 1500 Birr	126	64	1.63 (0.96, 2.75)	1.41 (0.62, 3.25)	0.414
1501- 2500 Birr	110	61	1.49 (0.88, 2.54)	2.80 (1.20, 6.52)	0.017
2501- 7,317 Birr	21	8	2.17 (0.86, 5.45)	4.98 (1.18, 21.03)	0.029
<b>Duration in sex work</b>					<b><u>0.002</u></b>
Less than 6 months	52	60	1.0	1.0	
6-11 months	60	45	1.54 (0.90, 2.63)	1.35 (0.60, 3.04)	0.468
12-23 months	79	40	2.28 (1.34, 3.88)	2.80 (1.26, 6.19)	0.011
24-35 months	55	15	4.23 (2.14, 8.36)	3.99 (1.50, 10.65)	0.006
>=3 years	57	11	5.98 (2.84, 12.59)	5.50 (1.97, 15.34)	0.001
<b>Frequency of alcohol use</b>					<b><u>0.509</u></b>
Never drink	59	69	1.0	1.0	
Rarely	70	42	1.95 (1.16, 3.27)	1.27 (0.60, 2.67)	0.536
Once in a week	30	8	4.39 (1.87, 10.30)	2.88 (0.81, 10.28)	0.104
Frequently but not daily	97	41	2.77 (1.67, 4.58)	1.36 (0.63, 2.94)	0.434
Daily	47	11	5.00 (2.38, 10.50)	1.92 (0.59, 6.21)	0.279
<b>Problem drinking</b>					
None	205	154	1.0	1.0	
Present	98	17	4.33 (2.48, 7.55)	2.67 (1.16, 6.14)	0.021
<b>Work place of CSWs</b>					<b><u>0.001</u></b>
One's own home	19	13	1.0	1.0	
Work in rental house	210	58	2.48 (1.16, 5.31)	3.72(1.25, 11.02)	0.018
Employed in bar/hotel	60	96	0.43 (0.20, 0.93)	1.23(0.40, 3.78)	0.723
Mobile sex worker	14	4	2.40 (0.64, 8.93)	6.12 (1.11, 33.64)	0.037
<b>Predominant client type</b>					<b><u>&lt;0.001</u></b>
Local Population	75	80	1.0	1.0	
Agricultural laborers	40	53	0.81 (0.48, 1.35)	0.82 (0.39, 1.71)	0.598
Truckers/drivers	15	6	2.67 (0.98, 7.23)	4.89 (1.26, 18.90)	0.022
Other Ethiopians (those who do not report predominant type of clients)	7	2	3.73 (0.75, 18.54)	3.10 (0.39, 24.52)	0.284
Sudanese	166	30	5.90 (3.58, 9.74)	6.40 (3.20, 12.78)	<0.001
<b>Familiarized persons</b>					
None	108	154	1.0	1.0	
Present	195	17	16.36 (9.41, 28.44)	16.76(8.24, 34.08)	<0.001
<b>Total</b>	<b>303</b>	<b>171</b>			

**Table-5: Correlates of unsafe sexual practices during the last sexual intercourse of cross border CSWs, Mettema Yohannis, northwest Ethiopia, 2010.**

Characteristics	unsafe sex (Case)	Safe sex (Non case)	Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
<b>Alcohol use</b>					<b>0.002</b>
Both not drunk	41	202	1.0	1.0	
Only CSWs drunk	20	42	2.35 (1.25, 4.40)	2.92 (1.45, 5.85)	0.003
Only partners drunk	22	94	1.15 (0.65, 2.05)	1.31 (0.70, 2.46)	0.401
Both drunk	19	34	2.75 (1.43, 5.30)	3.07 (1.51, 6.24)	0.002
<b>Substance use</b>					
No	83	330	1.0	1.0	
Yes	19	42	1.80 (0.99, 3.25)	1.73 (0.90, 3.31)	0.098
<b>Last sexual client type</b>					<b>&lt; 0.001</b>
Local population	27	164	1.0	1.0	
Agricultural laborer	10	58	1.05 (0.48, 2.30)	1.31 (0.56, 3.07)	0.528
Truckers/drivers	7	15	2.84 (1.06, 7.59)	4.09(1.45,11.57)	0.008
Other Ethiopians*	10	30	2.03 (0.89, 4.61)	3.16 (1.29, 7.74)	0.012
Sudanese	48	105	2.78 (1.63, 4.72)	3.95 (2.01, 6.63)	< 0.001
<b>Familiarization</b>					
None	86	367	1.0	1.0	
Present	16	5	13.66(4.87,38.30)	19.49(6.44,58.98)	< 0.001
<b>Total</b>	<b>102</b>	<b>372</b>			

\*Other Ethiopians\*: unknown address and job for Ethiopians who were served during the last sexual intercourse

## DISCUSSION

Unsafe sex has been practiced by 63.9% of the CSWs during the last 12 months. The prevalence was lower during the last 7 days (31.1%) and the last sexual intercourse (21.5%). These figures are relatively higher than other studies' results. For example, the prevalence during the last sexual intercourse (21.5%) is higher than the last 12 months' result (12%) of a study done in seven urban centers in Ethiopia (10). Three (0.6%) CSWs reported practicing heterosexual anal intercourse during the last 12 months, which was a low prevalence compared to other studies conducted on CSWs. A study done in South Africa on national trucking route reported a prevalence of 42.8% (17). The low prevalence of anal intercourse in this study might be due to the culture which deters such practices. However, social desirability bias could have its own influence leading to under-reporting of anal sex in this study. There was an indication of a potentially higher prevalence in that 64 (4.9%) of the clients requested the CSWs for anal sex during the last seven

days' assessment; most of these clients (51 or 79.7%) were foreigners.

The duration of exposure of participant CSWs to sex work was independently associated with unsafe sex. This is in agreement with the key informant's perceptions and experience that as CSWs stayed longer at their routine sex work, they would be tired of consistent use of safer sexual practices. They might also feel that they have already been exposed to STIs and/or HIV and involve in unsafe sexual practices. Other studies have also come up with this reasoning (10). The chance of encountering coercion for unsafe sex and condom breakage could also be more likely to happen as they stayed longer in this risky profession

Better education (attending secondary and higher levels) was independently associated with a reduced unsafe sexual practice: (AOR = 0.37 95% CI 0.19, 0.73). This is consistent with other studies (10, 11, 14). Studies done in urban sub-Saharan Africa indicated that education was consistently and significantly



associated with condom utilization in all the four cities: Yaoundé (OR=1.76), Nodola (OR= 2.94), Cotonou (OR=2.36), and Kisumu (OR=2.76).

In the global analysis, the monthly income of CSWs was found to be independently and positively associated with unsafe sex. It had also been clearly indicated qualitatively that some CSWs trade unsafe sex to charge larger fees. However, the situational analysis (which entertains only the incentives) did not provide the same results as the qualitative and global analyses. This was likely because CSWs might not report correctly the unsafe sex they trade for incentives because of shame and social desirability bias. In line with the present findings, studies done in Nigeria, Dire Dawa, and Oromiya showed that most CSWs practice unprotected sex if they find the price to be acceptable (15, 18, 19).

Frequency of alcohol use was not a globally independent associate factor of unsafe sex in this study. This contradicts other published studies (10, 20). A study on in-school and out-of-school youth in Ethiopia showed that alcohol users were at threefold risk of having unprotected sex compared to nonusers. For this study, the respondents' miss-classification of frequency levels of alcohol drinking (for reasons like memory lapse or social desirability bias) could be the reason for the insignificant association. However, in the situational analysis alcohol taken just before the last sexual intercourse was significantly associated with unsafe sexual practice. This result is in line with a study done in China, which also reported a significant association between alcohol intake and inconsistent condom use in the situational analysis but not in the global association (21). The present study also shows that alcohol has an effect on unsafe sex when taken by a CSW (i.e. when "only the CSW" or "the CSW and her client" drank) but not when "only the client drank". In the global association, problem drinking is associated with unsafe sex (OR = 2.67 95% CI 1.16, 6.14). A similar result was also obtained from a study done in seven cities in Ethiopia (10).

Commercial sex workers who were mobile or working in rental houses were more likely to practice unsafe sex than those working at their own home or a hotel/bar. The qualitative study was also in agreement with these findings. This might be true because mobile CSWs could be more vulnerable to coercion, while establishment based CSWs had the opportunity to meet, discuss, learn and share their experiences with other CSWs which helped them to be well-informed and practice safer sex. Informants emphasized that hotel owners could also protect CSWs at least from

coercion. This finding is in line with two studies done in Dire Dawa and Oromiya where establishment based CSWs were less likely to practice unprotected sex (18, 19).

The global association of this study showed that the predominant type of sexual client was significantly associated with unsafe sexual practice. Commercial sex workers were more likely to practice unsafe sex when their predominant sexual clients were Sudanese or truckers/drivers as compared to local clients. The situational analysis also provided a similar result. In the global association, familiarity was associated significantly with unsafe sex. It was also a consistently associated factor because both the global and situational analyses provided a significant result. The qualitative study also supported this finding. Other reports are also in line with this finding. A study done in four sub-Saharan cities indicated that as the partnership of sexual clients lasted longer, it was less likely to use condom due to familiarization (14). A qualitative study conducted in Nigeria also showed that CSWs were less likely to refuse unprotected sex with familiar clients (15). Another study done in North Carolina also indicated that when a CSW knew a male very well (was familiar), the condom utilization rate fell by 64% (16).

The primary limitation of this study is potential social desirability bias. Even though efforts to gain trust and honesty from CSWs and other participants were made during data collection, there could still be underreporting of very sensitive issues such as anal intercourse or trading unsafe sex for incentives.

## **CONCLUSION AND RECOMMENDATIONS**

The prevalence of unprotected vaginal sex among CSWs was high at Mettema Yohannis. Anal intercourse was not reported as a common practice even though it was a border town where such practices could be easily adopted, and informants reported that it was a sought service. Unsafe sexual practice was significantly associated with the familiarity of sexual clients, work place of CSWs, duration of sex work, educational status, predominant type of sexual client, and alcohol use.

The media needs to disclose how illegal brokers can mislead women about work opportunities in order to traffic them to border areas or abroad for sex work. Responsible Government organizations (like HIV/AIDS Prevention and Control Office (HAPCO)) and the newly emerging regional NGOs (Family Health

International and Mahibere Hiwot) could address the problem of familiarization and unsafe sex through CSW education and by developing evidence-based interventions for condom negotiation skills. We recommend that the Government of Ethiopia launch mobility friendly STI/HIV intervention programs to alleviate the vulnerability of CSWs and other border migrants.

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