Risky sexual behavior and its associated factors among daily laborers in Arjo-Didessa sugar factory, Jimma Arjo, Southwest Ethiopia: An institution-based cross-sectional study

Ayele Gezahegn Gemechu1, Lemessa Assefa Ayana2, Zelalem Desalegn Waqtole2, Edosa Kifle Tola3 and Markos Desalegn Beyene2

Abstract

Background: Ethiopia is one of the sub-Saharan African countries where the young population is densely found. Many studies reveal that the magnitude of risky sexual behavior is high in the youth. The consequences of risky sexual behavior developed during youth life may affect the sexual behavior in adult life, such as increasing the risk of acquiring and transmitting sexually transmitted infections, and predisposing to unwanted pregnancies. Our objective was to assess the risky sexual behaviors among daily laborers in Arjo-Didessa Sugar Factory, Jimma Arjo district, East Wollega zone, Southwest Ethiopia.

Methods: An institution-based cross-sectional study was conducted among 422 randomly selected daily laborers in the Arjo-Didessa sugar factory. For the quantitative and qualitative study, a simple random and purposive sampling technique, respectively, was employed to select the study participants. After data collection, data were checked manually for completeness, and then cleaned and entered into EPI info version 7. Statistical analyses like descriptive, bivariate, and multivariate logistic regression were performed using SPSS version 24 to determine the association between predictors and outcome variables with the help of the calculated frequencies and odds ratio with 95% confidence interval, while a p-value of less than 0.05 was taken as statistically significant.

Results: The mean age of study participants was 22.15 and standard deviation of ±2.9 years. Among the study participants who responded to having sex in the past 12 months, 171 (57%) with 95% confidence interval (0.51, 0.63) had ever experienced risky sexual practices. The findings of this study indicated that age from 20 to 24 years (adjusted odds ratio = 3.9, 95% confidence interval: 1.19–12.90), marital status (single) (adjusted odds ratio = 5.5, 95% confidence interval: 1.98–15.70), khat chewing (adjusted odds ratio=7.12, 95% confidence interval: 2.2–23.4), influence of alcohol for sex (adjusted odds ratio = 3.7, 95% confidence interval: 1.1–12.23), watching pornographic films (adjusted odds ratio = 4.2, 95% confidence interval: 1.5–12.2), and having income less than US$17 (adjusted odds ratio = 0.03, 95% confidence interval: 0.01–0.77) and US$17–US$52 (adjusted odds ratio = 0.23, 95% confidence interval: 0.06–0.85) were significantly associated with risky sexual behavior.

Conclusion: This study indicated that there are high-risk sexual practices among the study population. Age, marital status, income level, khat chewing, the influence of alcohol consumption to have sex, and pornographic viewing were found to be predisposing factors of the risky sexual behaviors among daily laborers at the Arjo-Didessa sugar factory. Enhancing sexual education and consulting the targeted groups for the behavioral change is highly advisable, which can reduce the consequences of risky sexual practices that prevailed in the study area.

1Jimma Arjo District Health Office, Jimma Arjo, Ethiopia
2Department of Public Health, Institute of Health Science, Wollega University, Nekemte, Ethiopia
3Department of Medical Laboratory Science, Institute of Health Science, Wollega University, Nekemte, Ethiopia

Corresponding author:
Edosa Kifle Tola, Department of Medical Laboratory Science, Institute of Health Science, Wollega University, P.O. Box: 395, Nekemte, Ethiopia.
Email: edosalab2@gmail.com
Introduction

Risky sexual behavior continues to be a contributing factor for the increment of sexually transmitted infection (STI) and HIV, especially in adolescent and young groups. The global burden of these diseases is increasing with estimates of 498 million new cases of STI as per the World Health Organization (WHO) report of 2008, and 36.9 million people were living with HIV according to a report of United Nations Programme on HIV/AIDS (UNAIDS) 2009, with the majority (66%) of the people harboring HIV living in sub-Saharan Africa.\(^\text{1,2}\)

During the transitional period from childhood to adulthood, the youth are very eager to practice everything without knowing its consequences. Young people are engaged in high-risk behaviors like drinking alcohol, chewing chat, using drugs, and smoking cigarettes. These behaviors, in turn, force them to practice risky sexual activities such as engaging in multiple sexual partners, sexual intercourse with commercial sex workers, and lack of using a condom.\(^\text{3-6}\)

In most sub-Saharan Africa including Ethiopia, the young population movement in search of work outside their living environment and STI/HIV are highly linked and predisposes the mobile groups to acquire and transmit these infections along with unwanted pregnancies.\(^\text{7-9}\)

Despite international efforts, studies reported that the rate of risky sexual practices is mostly increasing in developing countries due to the natural behavior of the young age groups being risk-takers. As reports revealed, young people in sub-Saharan Africa frequently engaged in unprotected sex, with multiple and commercial sex workers, including premarital sexual intercourse. As a result, the consequences that follow are unplanned pregnancies leading to unsafe abortions that may be fatal, or being a teenage mother; acquiring and transmitting STI; and affecting the sexual behavior during adult life.\(^\text{10-14}\)

According to a study conducted in Bodiitti town, Ethiopia among high-school students, 29.1% of them had a history of sexual intercourse with the first coitus at a mean age of 16.6 years. The majority of the male students had engaged in their first sex for trial (39.8%) followed by peer pressure (26.5%), while 22% of females had had sex as a means of generating money. Among the respondents who had sex, 20.5% of them had had sex with two or more sexual partners, 8.7% of them had had sex with more than one sexual partner, and only 67.6% used condoms. Among the female respondents who committed sex, 40% had a history of pregnancies and 56.3% of the pregnant respondents had had an abortion.\(^\text{14}\)

According to a survey conducted in Ethiopia, reports revealed the varied magnitudes of risky sexual behaviors. For example, a study reported risky sexual behaviors among 37.9% of school students in Jimma zone, 44.9% among big construction enterprise workers in Bahir Dar city, and 42% in Debre Markos town.\(^\text{15-17}\)

Although many studies of risky sexual behaviors and related factors have been conducted on school students, data on risky sexual behaviors and related factors in such occupational settings are limited. In response to this, we aimed to assess the risky sexual practices and associated factors among daily laborers working in Arjo-Didessa sugar factory, Jimma Arjo district, Southwest Ethiopia.

Methods

Study design and setting

An institutional-based cross-sectional study was conducted from 1 to 30 August 2019 in Arjo-Didessa Sugar Factory, Jimma Arjo district, East Wollega Zone, Oromia Regional State, Southwest Ethiopia. Arjo Didessa sugar factory is located in the Western Oromia region in the East Wollega zone nearby the Didessa River at the boundary of the Buno Bedelle Zone. This Didessa valley crosses between three zones, namely, East Wollega, Buno Bedelle, and Jimma zones. It is found at a distance of 395 km far away from Addis Ababa, the capital city of Ethiopia in the west direction.

This sugar factory has 1265 permanent staff and an average of 2000 daily laborers. The number of daily laborers increases during the harvesting, plantation, and sugar production season. There is one health center constructed for the factory workers with three clinics around residential areas where daily laborers temporarily live.

Study population and eligibility criteria

All the daily laborers working in the factory and who were able to respond during the study period and fulfill the inclusion criteria formed the study population. Quantitative and qualitative methods were employed to address the magnitude of risky sexual behaviors and predisposing factors among daily laborers working in the Arjo-Didessa sugar factory. Individuals aged above 15 years, who stayed in the factory for longer than 6 months, and were healthy during data collection were included in the study.

Sample size determination and sampling technique

The sample size for the quantitative study was determined using a single population proportion considering the following assumptions: level of confidence, 95%, 5% margin of
error and the prevalence of risky sexual behavior was taken as 50% to have the maximum sample size since there was no baseline data with a similar study setting and geographical location. Based on the above assumptions, the actual sample size calculated for the study was 422, including the nonresponse rate.

A total of 422 samples were distributed to the three residential areas where daily laborers live in the sugar factory for proportional allocation. After proportionally allocating the required sample size to each residential area (commands), the study participants were selected by a simple random sampling technique. According to the sample size, participants were selected by a random number generated by a computer from the total daily laborers’ list. The proportional allocation of sample is illustrated in Figure 1.

For the qualitative study, the key informants among daily laborers and health staff were purposively selected and face-to-face in-depth interview was conducted until the information required on the risky sexual behaviors was saturated.

Study variables
The outcome variable is risky sexual behavior, whereas the dependent variables include socio-demographic factors such as age, sex, religion, marital status, ethnicity, occupation and income, and behavioral factors like substance use (use of alcohols, khat, shisha, tobacco/cigarette), watching pornography, and peer pressure.

Data quality management
To assure the quality of data, the following measures were considered, including properly designing and pre-testing of the questionnaire, proper training of the data collectors and supervisors on the data collection procedures, and proper coding.

The Afan Oromo version questionnaire was pre-tested on 20 daily laborers of “Best Mineral Water” factory daily laborers in Jimma Arjo district. The interview guide was also pre-tested on a sample of key informants available at their workplace. The interview took up to 30 min. Continuous follow-up and supervision were made by supervisors and the principal investigator throughout the data collection period for checking the proper completeness and relevance of data. Data quality was also ensured during data coding, cleaning, entry to a computer, and during analysis.

Statistical analysis
Data collected were checked manually for completeness and consistency, and then cleaned, categorized, coded, and entered into EPI info version 7. For the sake of analysis, data were transferred to SPSS version 24. During the analysis, frequencies and OR with 95% CI were calculated to determine the association of selected variables with the outcome variable. Descriptive, bivariate, and multivariate logistic regression analyses were implemented to determine the association between predictors and outcome variables and to control confounders. All variables associated with risky sexual behaviors in bivariate analysis were considered as candidate variables with $p < 0.25$ for the multivariable logistic
regression model. A p-value of less than 0.05% and 95% CI that excludes 1 (unity) were considered to be statistically significant. Model fitness was tested using the Hosmer–Lemeshow test at p > 0.05 as a cutoff point. Qualitative data were recorded, transcribed, and translated to English, and finally used to supplement the quantitative findings and analyzed thematically.

Research ethics and patient consent

The ethical clearance with approval number DPH/116/2011 was obtained from the Research Ethics Review Committee (RERC) of Wollega University. A formal letter of cooperation was written to the management of the sugar factor for cooperation. Verbal consent obtained from the study subjects and written consent taken from the legally authorized representatives of the minor subjects was approved by the RERC of Wollega University prior to study initiation.

Operational definition

Risky sexual behavior: daily laborers in Arjo-Didessa sugar factory who experienced at least one of risky sexual behaviors such as having multiple sexual partners, sexual contact with casual sexual partner or commercial sex worker, or have an experience of unprotected sex (inconsistent condom use).

Results

Socio-demographic characteristics of respondents

From the total of 422 participants who were selected for an interview, 411 respondents were interviewed and included in the analysis, and 11 respondents were excluded from the analysis, and the response rate was 97.4%. The majority of the study participants 247 (60.1%) were male and 255 (62%) study participants were in the age group of 20–24 years with a mean age of 22.15 (±2.9) years. Most of the respondents were protestant (225 (54.7%)) by religion and Oromo (393 (95.6%)) by ethnicity.

Regarding educational status, 164 (39.9%) respondents were above grade 10. A total of 264 (64%) of respondents were single and 130 were married currently and the mean age at first marriage was 20.42 (±1.97) years. The average monthly income of 133 (32.4%) respondents was between US$17 and US$34, for 131 (31.9%) it was between US$35 and US$52, and for 129 (31.4%) it was above US$52 (Table 1).

Risky sexual practices

Among the 411 study participants, 316 (76.8%) have ever experienced sexual intercourse in their lifetime. Of the sexually experienced respondents, 94 (29.7%) had two sexual partners and 80 (25.3%) had three and above sexual partners so far.

From the total 316 participants who have ever experienced sexual intercourse, 210 (66.5%) did not use a condom for the first time of their sexual intercourse. The mean age at first sexual intercourse was 19.18 (±2) years for males and 18.38 (±1.79) for female respondents with the minimum age at first sex being 15 years for both male and female respondents. More than two-third of the 211 (66.7%) respondents had had their first sex at the age of ≤19 years. Of the sexually experienced participants, premarital sex was indulged in by 202 (63.9%). As regards the first time of premarital sex, the majority (116 (36.7%)) of them had first sexual intercourse with a regular partner, followed by 70 (22.2%) and 16 (5.1%) with casual and commercial partners, respectively (Table 2).

Among 316 who had experienced sexual intercourse, 300 responded with having an experience of sexual intercourse in the past 12 months, of which 171 (57%) had experienced risky sexual practices. From the 300 respondents who had experienced sex in the past 12 months, 129 (43%) of them had a partner from daily laborers in the factory, while about 87 (29%) of the respondents’ partners were from the community nearby and 40 (13.3%) of their partners were from other places (Table 2).
Use of condom

Among all daily laborers who reported having sex with regular, casual, or commercial sex partners during their stay in the factory, only 176 (58.6%) of them used condoms consistently in the past 12 months with their partners. The common reasons cited by participants for inconsistent use of condoms were partner refusal (72%), reduced sexual pleasure (61%), and having trust in the partner (50%).

Figure 2. Reasons for not using condom consistently among study participants in Arjo Didessa sugar factory, Jima Arjo district, East Wollega, Southwest Ethiopia, 2019. This indicates that the majority of the participants did not use condoms because their partners refused to use them and since it reduced the sexual pleasure during having sex.

Multiple sexual partners

Among the 300 participants who responded to having sex in the past 12 months, 175 (58.3%) sexually active participants had had sexual intercourse with only one partner in the past 12 months and 125 (41.7%) had had sexual practice with two or more partners.

Casual sex

From the 300 respondents who had experienced sex in the past 12 months, 119 (39.7%) participants executed sex with a casual partner, and about half of them used condoms consistently. A large proportion of them (61.9%) who executed sex with a casual partner were males.

Sex with commercial sex workers

Among the total 300 participants who were currently in a sexual relationship, 36 (12%) had had sex with commercial sex workers during their stay in the factory. From these, 26 (72.2%) responded to consistent use of condoms during the past 12 months. Practicing commercial sex was more prevalent among respondents with better current income (>US$52) 18 (50%), and 25 (69.4%) of them consumed alcohol and about half of them were khat consumers. The overall risky sexual behavior among laborers at the study site is 57%. The risky sexual behaviors are illustrated in Figure 3.

Substance use

Among 324 study participants who responded to ever using any substance, 252 (77.8%) are currently consuming alcoholic beverages, 133 (41%) currently chewing khat, and 31 (9.6%) currently smoking cigarettes. Of all the study participants, 170 (41.4%) have currently watched pornography of which half of them (50%) were ever influenced by it and had sex (Table 3).

Qualitative result

Eight in-depth interviews were made among purposively selected health professionals and daily laborers.

In-depth interviews were mainly focused on assessing common risky sexual behaviors, factors that aggravate risky sexual behavior, factors that initiate sexual desire the most, and measures to be taken regarding improvement of the risky sexual behavior of daily laborers.

Table 2. Sexual history among the study participants in Arjo-Didessa sugar factory, 2019.

| Variable                              | Frequency |   |
|---------------------------------------|-----------|---|
|                                      | Number    | % |
| Risky sexual behavior (n = 300)       |           |   |
| Yes                                   | 171       | 57|
| No                                    | 129       | 43|
| Having sexual intercourse (n = 411)   |           |   |
| Yes                                   | 316       | 76.9|
| No                                    | 95        | 23.1|
| Age at first sexual intercourse (n = 316) |       |   |
| 15–19 years                           | 211       | 66.8|
| 20–25 years                           | 105       | 33.2|
| With whom executed first sexual intercourse (n = 316) |       |   |
| Wife/husband                          | 114       | 36.1|
| Commercial sex worker                 | 16        | 5.0|
| Casual partner                        | 70        | 22.0|
| Regular partner                       | 116       | 36.7|
| Use of condom during first time sex (n = 316) |       |   |
| Yes                                   | 106       | 33.5|
| No                                    | 210       | 66.5|
| Sex in the past 12 months (n = 316)   |           |   |
| Yes                                   | 300       | 94.9|
| No                                    | 16        | 5.1|
| Consistent condom use in the past 12 months (n = 300) |       |   |
| Yes                                   | 176       | 58.6|
| No                                    | 124       | 41.4|
| Number of sexual partners in the past 12 months (n = 300) |       |   |
| Only one partner                      | 175       | 58.3|
| Two and above partners                | 125       | 41.7|
In-depth interview participant 1 (p1) was a male participant aged 32, who was a daily laborer in the sugar factory. According to his response, there were various risk factors which daily laborers encountered. Some of them were multiple sex partners, casual sex, and unprotected sex. He added that the place where daily laborers live is very conducive to practicing sex because the male resident block is located very close to that of females, and also the sugarcane environment may serve as a safe place to practice sex, as they can hide under the sugarcane.

Discussant 2 (p2) was a male participant aged 28, who was a health professional and HIV prevention and control focal person at the health center in the sugar factory. The response of Discussant 2 is almost similar to that of 1. In addition, he responded that daily laborers need to practice either abstinence, be faithful, or use condoms consistently, and also peer group discussion is mandatory.

Discussant 3 (p3) was a male participant aged 33, who was a health professional in the health center near the sugar factory. He said that there are factors that aggravate risky sexual behaviors of daily laborers like alcohol consumption, khat chewing, and other substances. These aggravating factors initiate the sexual desires of daily laborers so that they practice risky sexual behaviors like multiple sex, casual sex, and unprotected sex. The discussant also added that behavioral change communications and peer group discussions are very much important to prevent the risky sexual behaviors of daily laborers.

Another discussant 4 (p4) male participant aged 25, who was a health professional and youth-friendly service focal person stated that daily laborers practice sex due to peer pressure. He also added that being away from family members also aggravates daily laborers’ risky sexual behaviors.

Discussant 5 (p5) was a female participant aged 26, who was a health extension worker at the sugar factory. She said that the workplace and living areas of daily laborers are not well separated and daily laborers start a relationship with

The Figure 3. Risky sexual behaviors among daily laborers in Ajio Didessa sugar factory in the past 12 months, Jima Arjo district, East Wollega, Southwest Ethiopia, 2019. This figure indicates the possible risky sexual practices noted during the study.

Table 3. Substance use and other behaviors among study participants in Arjo-Didessa sugar factory, 2019.

| Variable                                    | Frequency                      |
|---------------------------------------------|--------------------------------|
| Ever consumed alcohol (n = 324)             |                                |
| Yes                                         | 252 77.8                       |
| No                                          | 72 22.2                        |
| Ever chewed khat (n = 324)                  |                                |
| Yes                                         | 133 41                         |
| No                                          | 191 58.9                       |
| Ever smoked cigarette (n = 324)             |                                |
| Yes                                         | 31 9.6                         |
| No                                          | 293 90.4                       |
| Ever seen pornography (n = 411)             |                                |
| Yes                                         | 170 41.3                       |
| No                                          | 241 58.7                       |
| Ever influenced by pornography (n = 170)    |                                |
| Yes                                         | 85 50                          |
| No                                          | 85 50                          |
| Peer influence to have sex in past 12 months (n = 300) |          |
| Yes                                         | 79 26.3                        |
| No                                          | 221 73.6                       |
| HIV/AIDS risk perception (n = 411)          |                                |
| Yes                                         | 38 9.2                         |
| No                                          | 349 84.9                       |
| I don’t know                                | 24 5.8                         |
| Information about services of VCT (n = 411) |                                |
| Ever heard about services of VCT            | 363 88.3                       |
| Ever undergo VCT                            | 267 64.9                       |

VCT: voluntary counseling and testing.
strange daily laborers (casual), and these factors contribute to practice risky sexual behaviors.

**Predictors of risky sexual behaviors**

**Bivariate analysis.** Simple logistic regression (bivariable analysis) was performed to identify the association between each independent and dependent variable. All variables associated with risky sexual behaviors in this bivariate analysis were considered as candidate variables with \( p < 0.25 \) for the multivariable logistic regression model (Table 4).

**Multivariable analysis**

Multiple logistic regression analysis was performed to identify the factors associated with risky sexual behaviors of daily laborers. Coefficients were expressed as crude and adjusted OR relative to the referent category and several risk factors have emerged as a significant predictor of risky sexual behaviors.

Among the socio-demographic variables, sex, age, and marital status of the respondents and from the socioeconomic variable, the monthly income of the respondents was analyzed using logistic regression against risky sexual behaviors. From behavioral variables, sex with a regular partner, chewing khat, and alcohol consumption, sex influenced by alcohol, and always watching pornographic films were analyzed using logistic regression against risky sexual behavior.

The findings of this study showed that participants from 20 to 24 years were 3.9 times (AOR = 3.9, 95% CI: 1.19–12.90) more likely to practice risky sexual behaviors than respondents aged from 25 to 29 years (Table 5).

### Table 4. Bivariate analysis of socio-demographic, sexual history, substance use, and other behaviors with risky sexual behavior among study participants of Arjo-Didessa sugar factory, 2019 (n = 300).

| Variables                        | Risky sexual behavior | OR and 95% CI | p-value |
|----------------------------------|-----------------------|---------------|---------|
|                                  | Yes (%)               | No (%)        | COR     | p-value    |
| Sex                              |                       |               |         |            |
| Male                             | 86 (28.7)             | 80 (26.7)     | 0.60 (0.39–0.98) | 0.001     |
| Female                           | 85 (28.3)             | 49 (16.3)     | 1       |            |
| Age                              |                       |               |         |            |
| 15–19                            | 22 (7.3)              | 9 (3)         | 0.50 (0.26–0.97) | 0.039     |
| 20–24                            | 105 (35)              | 89 (29.7)     | 0.72 (0.44–1.16) | 0.177     |
| 25–29                            | 44 (14.7)             | 31 (10.3)     | 1       |            |
| Marital status                   |                       |               |         |            |
| Single                           | 113 (37.7)            | 42 (14)       | 1.58 (1.02, 2.45) | 0.043     |
| Divorce                          | 16 (5.3)              | 2 (0.7)       | 16.76 (3.68, 76.28) | 0.0001    |
| Married                          | 42 (14)               | 85 (28.3)     | 1       |            |
| Income (US$)                     |                       |               |         |            |
| Less than 17                     | 4 (1.3)               | 4 (1.3)       | 0.14 (0.04–0.46) | 0.001     |
| 17–34                            | 38 (12.7)             | 62 (20.7)     | 0.20 (0.12–0.34) | 0.001     |
| 35–52                            | 43 (14.3)             | 35 (11.7)     | 0.24 (0.15–0.41) | 0.001     |
| >52                              | 86 (28.7)             | 28 (9.3)      | 1       |            |
| Sex with regular partner         |                       |               |         |            |
| Yes                              | 108 (36)              | 45 (15)       | 3.20 (2.21–5.68) | 0.001     |
| No                               | 63 (21)               | 84 (28)       | 1       |            |
| Using khat in the past 12 months |                       |               |         |            |
| Yes                              | 56 (18.7)             | 37 (12.3)     | 1.29 (1.74–2.22) | 0.200     |
| No                               | 67 (22.3)             | 57 (19)       | 1       |            |
| Alcohol use in the past 12 months|                       |               |         |            |
| Yes                              | 110 (36.7)            | 69 (23)       | 5.8 (1.64–7.29) | 0.001     |
| No                               | 26 (4)                | 95 (8.7)      | 1       |            |
| Frequency of drinking            |                       |               |         |            |
| Every day                        | 90 (30)               | 36 (12)       | 6.82 (2.94–15.8) | 0.001     |
| 2–3 times per week               | 38 (12.7)             | 77 (25.7)     | 0.48 (0.209–1.098) | 0.82     |
| Less than one per week           | 27 (9)                | 32 (10.7)     | 1       |            |
| Influence of alcohol for sex     |                       |               |         |            |
| Yes                              | 55 (45.1)             | 7 (4.9)       | 26 (6.28–27.76) | 0.001     |
| No                               | 55 (54.9)             | 183 (95.1)    | 1       |            |
| Ever watching pornography        |                       |               |         |            |
| Yes                              | 124 (72.5)            | 33 (19.2)     | 7.68 (6.99–17.71) | 0.001     |
| No                               | 47 (27.5)             | 96 (80.8)     | 1       |            |
The marital status of study participants also had a significant association with risky sexual behavior. Single/never married participants are 5.5 times (AOR = 5.5, 95% CI: 1.98–15.70) more likely to practice risky sexual behaviors compared to those who had married. The other variable that is significantly associated with risky sexual behavior is the income level of the respondents. Having an income level of less than US$17 and US$17–US$34 per month decreases the odds of risky sexual behavior by 97% (AOR = 0.03, 95% CI: 0.01–0.77) and 73% (AOR = 0.23, 95% CI: 0.06–0.85) respectively (Table 5).

Chewing khat was found to have a significant association with risky sexual behavior. It was found that those chewing khat were 7.12 times more likely to practice risky sexual behaviors than those who were not chewing khat (AOR = 7.12, 95% CI: 2.2–23.4) (Table 5).

| Table 5. Factors associated with risky sexual behaviors among daily laborers in Arjo Didessa sugar factory, 2019 (n=300). |
|---------------------------------------------------------------|
| Variables | Risky sexual behavior | OR and 95% CI |  |
|           | Yes (%) | No (%) | COR | AOR |  |
| Sex       |          |          |     |     |  |
| Male      | 86 (28.7) | 80 (26.7) | 0.60 (0.39–0.98) | 0.34 (0.11–1.04) |  |
| Female    | 85 (28.3) | 49 (16.3) | 1 | 1 |  |
| Age       |          |          |     |     |  |
| 15–19     | 22 (7.3) | 9 (3) | 0.50 (0.26–0.97) | 9 (0.74–107) |  |
| 20–24     | 105 (35) | 89 (29.7) | 0.72 (0.44–1.16) | 3.9 (1.19–12.90) |  |
| 25–29     | 44 (14.7) | 31 (10.3) | 1 | 1 |  |
| Marital status |          |          |     |     |  |
| Single    | 113 (37.7) | 42 (14) | 1.58 (1.02, 2.45) | 5.5 (1.98–15.70) |  |
| Divorce   | 16 (5.3) | 2 (0.7) | 16.76 (3.68, 76.28) | 16.2 (0.72–365) |  |
| Married   | 42 (14) | 85 (28.3) | 1 | 1 |  |
| Income (USD) |          |          |     |     |  |
| Less than 17 | 4 (1.3) | 4 (1.3) | 0.14 (0.04–0.46) | 0.03 (0.01–0.77) |  |
| 17–34     | 38 (12.7) | 62 (20.7) | 0.20 (0.12–0.34) | 0.23 (0.06–0.85) |  |
| 35–52     | 43 (14.3) | 35 (11.7) | 0.24 (0.15–0.41) | 0.64 (0.16–2.48) |  |
| >52       | 86 (28.7) | 28 (9.3) | 1 | 1 |  |
| Sex with regular partner |          |          |     |     |  |
| Yes       | 108 (36) | 45 (15) | 3.20 (2.21–5.68) | 2.01 (0.67–6.06) |  |
| No        | 63 (21) | 84 (28) | 1 | 1 |  |
| Using khat in the past 12 months |          |          |     |     |  |
| Yes       | 56 (18.7) | 37 (12.3) | 1.29 (1.74–2.22) | 7.12 (2.2–23.4.) |  |
| No        | 67 (22.3) | 57 (19) | 1 | 1 |  |
| Alcohol use in the past 12 months |          |          |     |     |  |
| Yes       | 110 (36.7) | 69 (23) | 5.8 (1.64–7.29) | 2.4 (0.91–12) |  |
| No        | 26 (4) | 95 (8.7) | 1 | 1 |  |
| Frequency of drinking |          |          |     |     |  |
| Every day | 90 (30) | 36 (12) | 6.82 (2.94–15.8) | 3.3 (0.72–15.51) |  |
| 2–3 times per week | 38 (12.7) | 77 (25.7) | 0.48 (0.209–1.098) | 0.54 (0.12–2.51) |  |
| Less than one per week | 27 (9) | 32 (10.7) | 1 | 1 |  |
| Influence of alcohol for sex |          |          |     |     |  |
| Yes       | 55 (45.1) | 7 (4.9) | 26 (6.28–27.76) | 3.7 (1.1–12.23) |  |
| No        | 55 (45.9) | 183 (95.1) | 1 | 1 |  |
| Ever watching pornography |          |          |     |     |  |
| Yes       | 124 (72.5) | 33 (19.2) | 7.68 (6.99–17.71) | 4.2 (1.5–12.2) |  |
| No        | 47 (27.5) | 96 (80.8) | 1 | 1 |  |

The influence of alcohol on sex was significantly associated with practicing risky sexual behavior. Respondents who consumed alcoholic beverages were about 3.7 times more likely to be influenced by it and practice risky sexual behaviors compared to non-users of alcoholic beverages (AOR = 3.7, 95% CI: 1.1–12.23). The other behavioral factor that has shown significant association was watching pornographic films. Participants who responded to have ever seen pornographic films were 4.2 times more likely to practice risky sexual behavior compared to those respondents who have never seen pornographic films (AOR = 4.2, 95% CI: 1.5–12.2) (Table 5).

**Discussion**

According to the study findings, the magnitude of risky sexual behavior among the study participants was 57% with
consumed alcoholic beverages were about 3.7 times more associated with practicing risky sexual behavior. Respondents who earned less were 7.12 times more likely to practice risky sexual behaviors than those who were not (AOR = 7.12, 95% CI: 2.2–23.4). This is higher than the study conducted on the assessment of sexual violence and associated factors among students of Madawalabu University and substance use and risky sexual behavior among Haramaya University students.\textsuperscript{18,22} This might be because khat is restricted to outside the campus so that students cannot access it whenever they want to. On the contrary, this study is lower when compared to the study done in Bahir Dar town, Ethiopia, among female unmarried school students who chewed khat were 8.99 times more likely to practice risky sexual behaviors.\textsuperscript{28}

The marital status of the study participants also had a significant association with risky sexual behavior. Single/never married participants were 5.5 times (AOR = 5.5, 95% CI: 1.98–15.70) more likely to have risky sexual behaviors compared to those who were married.

This result is higher compared to the study conducted among private college students in Nekemte Town in which unmarried students were nearly 3 times more likely to have multiple sexual partners than married.\textsuperscript{29} This difference might be that individuals separated from their parents start to practice risky sexual behaviors because they are out of control.

The qualitative result that discussant 4 (p4) said “being apart from family members and/or parents may aggravate daily laborers risky sexual behaviors.” According to the qualitative finding, discussant 3 (p3) also said that “substance use especially alcohol is an aggravating factor that initiates sexual desire of daily laborers so that they are influenced by it and practice risky sexual behaviors.”

However, this study is lower when compared to the study done on the premarital sexual debut of the female school students in Bahir Dar town, Ethiopia; risky sexual practice and associated factors among secondary and preparatory school students of Aksum town, northern Ethiopia, 2018, and in Nekemte town among private college students showed that respondents who viewed sexual films were 4.9, 10.2, and
10.7 times more likely to practice risky sexual behavior respectively.\textsuperscript{28–30} This variation may be owing to the differences in place of residence and accessibility of the Internet and sophisticated mobile phone around urban areas.

Watching pornographic films has also shown a significant association. Participants who responded to have ever seen pornographic films were 4.2 times more likely to practice risky sexual behavior compared to those respondents who have never seen pornographic films (AOR = 4.2, 95% CI: 1.5–12.2). This study is similar to the study done in Cameroon on the prevalence and correlates of HIV-risky sexual behaviors among students attending the medical and social welfare center of the University of Maroua, Cameroon. It revealed that students who have seen pornographic films were 4.3 times more likely to have lifetime sexual partners than non-pornographic viewers (AOR: 4.3, 95% CI: 1.9–9.5; p < 0.001).\textsuperscript{31} Our study revealed that respondents in the age group of 20–24 are 4 \times more likely vulnerable to risky sexual behaviors when compared to other age groups (AOR = 3.9, 95% CI: 1.9–12.90). This finding is almost similar to the study done on risky sexual behavior and predisposing factors among Jimma University students, which revealed students of age >20 years are 4.7 \times more likely at risk of risky sexual practices when compared to the other age groups (AOR = 4.77, 95% CI: 2.43–9.35).\textsuperscript{32}

**Conclusion**

The study found that risky sexual behavior is highly practiced among the study participants. They were practicing risky sexual behaviors such as inconsistent use of a condom, practicing sex with casual partners, having multiple sexual partners, and having sex with commercial sex workers, age, marital status, income level, khat chewing, the influence of alcohol to have sex, and watching pornographic films were found to be factors associated with risky sexual behaviors of daily laborers. Therefore, strengthening sexual education and consulting the targeted groups for the behavioral change is highly recommended to minimize the consequences of risky sexual practices that prevailed in the study area, which ultimately demands the involvement of organizational agencies working on STIs/HIV at community and district levels.

**Limitations of the study**

- Limitations of adequate references, especially on risky sexual behaviors on similar study setting and geographical location for comparison of results.
- Social desirability bias due to sensitive and personal questions related to sexuality.
- There was a possibility of recall biases during determination of some sexual behavior.

**Acknowledgements**

The authors are grateful to the data collectors and to the study subjects for their voluntary participation in the study.

**Author contributions**

A.G.G. and L.A.A. made substantial contributions to the design and concept of the preliminary study; Z.D.W., E.K.T., and M.D.B. supported the data collection, analysis, and interpretation; E.K.T., L.A.A., and Z.D.W. prepared the drafts of the manuscript; and A.G.G., E.K.T., and M.D.B. helped the study in revising the drafts of the article for the important intellectual content. Finally, all the authors read and approved the final version of the article to be published, and they are equally accountable for all aspects of the work, as well.

**Declaration of conflicting interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Ethical approval**

Ethical approval for this study was obtained from the research ethics review committee (RERC) of Wollega University (DPH/116/2011).

**Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

**ORCID iDs**

Zelalem Desalegn Waqtole \textsuperscript{1} https://orcid.org/0000-0003-4745-5275

Edosa Kifle Tola \textsuperscript{2} https://orcid.org/0000-0002-3135-8633

**Availability of data and materials**

The data analyzed during the study are available from the corresponding author upon formal request.

**Informed consent**

Verbal consent obtained from the study subjects and written consent taken from the legally authorized representatives of the minor subjects was approved by the RERC of Wollega University prior to study initiation.

**Supplemental material**

Supplemental material for this article is available online.

**References**

1. Newman L, Rowley J, Vander Hoorn S, et al. Global estimates of the prevalence and incidence of four curable sexually transmitted infections in 2012 based on systematic review and global reporting. *PloS One* 2015; 10(12): e0143304.

2. Weine SM and Kashuba AB. Labor migration and HIV risk: a systematic review of the literature. *AIDS Behav* 2012; 16(6): 1605–1621.

3. Dahal S, Pokharel PK and Yadava BK. Sexual behavior and perceived risk of HIV AIDS among returnee labor migrants from overseas in Nepal. *Retrovirology* 2012; 9(S1): P1061742–1104690.

4. Organista KC, Worby PA, Quesada J, et al. Sexual health of Latino migrant day labourers under conditions of structural vulnerability. *Cult Health Sex* 2013; 15(1): 58–72.
5. Rwenge M. Sexual risk behaviors among young people in Bamenda, Cameroon. Int Fam Plan Perspect 2000; 26(3): 118.
6. Nurse Tutor Programme University College Hospital Ibadan Nigeria, Oluwatoyin FE and Modupe OO. Risky sexual behaviour among secondary school adolescents in Ibadan north local government area, Nigeria. IOSR J Nurs Health Sci 2014; 3(3): 34–44.
7. Leventhal AM, Strong DR, Kirkpatrick MG, et al. Association of electronic cigarette use with initiation of combustible tobacco product smoking in early adolescence. JAMA 2015; 314(7): 700.
8. Alamrew Z, Bedimo M and Azage M. Risky sexual practices and associated factors for HIV/AIDS infection among private college students in Bahir Dar City, Northwest Ethiopia. IOSR Public Health 2013; 2013: 1–9.
9. Chick CF and Reyna VF. A fuzzy trace theory of adolescent risk taking: beyond self-control and sensation seeking. In: Reyna VF, Chapman SB and Dougherty MR (eds) The adolescent brain: learning, reasoning, and decision making. Washington, DC: American Psychological Association, 2012, pp. 379–428.
10. Yi S, Poudel KC, Yasuoka J, et al. Role of risk and protective factors in risky sexual behavior among high school students in Cambodia. BMC Public Health 2010; 10(1): 477.
11. Wamoyi J, Fenwick A, Urassa M, et al. Parental control and monitoring of young people’s sexual behaviour in rural North-Western Tanzania: implications for sexual and reproductive health interventions. BMC Public Health 2011; 12: 106.
12. Stockl H, Kalra N, Jacobi J, et al. Is early sexual debut a risk factor for HIV infection among women in Sub-Saharan Africa? A systematic review. Am J Reprod Immunol 2013; 69(Suppl 1): 27–40.
13. Kassa GM, Degu G, Yitayew M, et al. Risky sexual behaviors and associated factors among Jiga High School and preparatory school students, Amhara Region, Ethiopia. Int Sch Res Notices 2016; 2016: 4315729–4315727.
14. Deresse D and Debebe S. Magnitude of risky sexual behavior among high school adolescents in Ethiopia: a cross-sectional study. J Public Health Epidemiol 2014; 6(7): 211–215.
15. Fentahun N and Mamo A. Risky sexual behaviors and associated factors among male and female students in Jimma Zone preparatory schools, South West Ethiopia: comparative study. Ethiop J Health Sci 2014; 24(1): 59–68.
16. Kassa M, Tesfaye E and Alamrew Z. Risky sexual behaviour among big construction enterprise workers, Bahir Dar City, Amhara Regional State, Northwest Ethiopia. Int J Clin Med 2013; 04(06): 296–303.
17. Nikus MM. Sexual risk behaviour and associated factors among Governmental Higher Institution Students in Debreczen Town, North West Ethiopia. Public Health Open Access 2018; 2(1). doi:10.23880/PHOA-16000121.
18. Muhammedawel TB. Sexual violence and associated factors among female students of Madawalabu University in Ethiopia. Epidemiol Open Access 2015; 05(02). doi:10.4172/2161-1165.1000190.
19. Gossaye Birru T. Determinants of risky sexual behaviour among preparatory school students in Gurge Zone, SNNPR, Ethiopia (A cross-sectional school based study). Sci J Public Health 2016; 4(4): 330.
20. Tiruneh K, Wasie B and Gonzalez H. Sexual behavior and vulnerability to HIV infection among seasonal migrant laborers in Metema district, northwest Ethiopia: a cross-sectional study. BMC Public Health 2015; 15(1): 122.
21. Sisay C, Abera H, Hailu G, et al. Risky sexual behavior and associated factors among cobblestone chiseling daily laborer, Addis Ababa, Ethiopia. J AIDS Clin Res 2018; 09(04). doi:10.4172/2155-6113.1000766.
22. Derese A, Seme A and Misganaw C. Assessment of substance use and risky sexual behaviour among Haramaya University Students, Ethiopia. Sci J Public Health 2014; 2: 102-110.
23. Cherie A and Berhane Y. Peer pressure is the prime driver of risky sexual behaviors among school adolescents in Addis Ababa, Ethiopia. World J AIDS 2012; 02(03): 159–164.
24. Yohannes B, Gelofo T and Tarekegn M. Prevalence and associated factors of sexually transmitted infections among students of Wolaita Sodo University, Southern Ethiopia 2013; 2(2): 10.
25. Tsehay DS, Mulatie MM and Sellakumar GK. Risky sexual behavior among adolescent students in North Gondar, Ethiopia. Innovare J Soc Sci 2014; 2(1): 6.
26. Olijira L, Berhane Y and Worku A. Pre-marital sexual debut and its associated factors among in-school adolescents in eastern Ethiopia. BMC Public Health 2012; 12(1): 375.
27. Perera UAP and Abeysena C. Prevalence and associated factors of risky sexual behaviors among undergraduate students in state universities of Western Province in Sri Lanka: a descriptive cross sectional study. Reprod Health 2018; 15(1): 105.
28. Mulugeta Y and Berhane Y. Factors associated with pre-marital sexual debut among unmarried high school female students in Bahir Dar town, Ethiopia: cross- sectional study. Reprod Health 2014; 11(1): 40.
29. Feyisa BN and Teferi Bala E. Risky sexual behaviors for HIV infection among female Private College Students in Nekemte Town, Western Ethiopia. J Women Health Care 2015; 04(07). doi:10.4172/2167-0420.10000284.
30. Girmay A and Mariye T. Risky sexual behavior practice and associated factors among secondary and preparatory school students of Aksum town, northern Ethiopia, 2018. BMC Res Notes 2019; 12(1): 698.
31. Nouhip N, Nanseu JRN, Ndoula ST, et al. Prevalence and correlates of HIV-risky sexual behaviors among students attending the Medical and Social Welfare Center of the University of Maroua, Cameroon. BMC Res Notes 2015; 8(1): 635.
32. Tura G, Alemeseged F and Dejene S. Risky sexual behavior and predisposing factors among students of Jimma University, Ethiopia. Ethiop J Health Sci 2012; 22(3): 170–180.