Does social connectedness influence risky sexual behaviours? finding from Ethiopian youths

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ABSTRACT

Background: Various studies on risk sexual behaviours focus on personal factors. However, the influence of essential social factors needs a profound concern.

Methods: An institutional based cross-sectional study triangulated with qualitative data was conducted at North Shewa Zone, from February to March 2016. Six hundred and thirty-five students were selected using a multi-stage sampling method. Self-administered questionnaire and focus group discussion guide were used for data collection. Result: Of 628 students, 115 (18.3%) of them reported risky sexual behaviour. Social connectedness was inversely correlated with having risky sexual behaviour. Substance user students had four times, risky sexual behaviours than non users (AOR = 4, 95%CI (1.54–10.3)). Risky sexual behaviour was associated with family connectedness (AOR = .39, 95%CI (.303–.51)), religion connectedness (AOR = .23, 95%CI (.169–.31)) and school connectedness (AOR = .39, 95%CI (0.297–.52)). Conclusion: Grade level, substance use, religious, family and school connectedness were major predictors of risky sexual behaviour.

Introduction

World Health Organization (WHO) define ‘youth’ as the age group between 15 and 24 years (WHO, 2009). Youth age is a developmental period with rapid physical, psychological, social and cultural changes that increase autonomy from their parents. This brings a new challenges and risks marked differences in patterns of morbidity and mortality compared with children (Eaton et al., 2008; Saritas & Erci, 2014).

Risky sexual behaviours are any behaviour that increases the likelihood of acquiring negative consequences related to sexual contact. It includes, having multiple partners, having risky casual or unknown sexual partners, early sexual initiation and failure to take protective actions, such as condom (Cooper, 2002; Centers for Disease Control & Prevention, 2009). These behaviours determine health and well-being of youth (Abebe & Fekadu, 2000). They have also negative consequences for physical, social and psychological health of youth. For instance, early sexual initiation among youth results in more lifetime sexual partners, increases the chance of acquiring sexually transmitted infections, including HIV/AIDS and a greater likelihood of having an unintended pregnancy (Grunbaum et al., 2004; Simons, Burt, & Peterson, 2009).

Youths’ risky sexual behaviours remain a concern in many developing countries, including sub-Saharan Africa. Evidence from Demographic to Health Surveys shows high levels of multiple sexual partners.
and high risk sex among female and male youths living in sub-Saharan Africa. A vast majority of whom report inconsistent condom use at their last high risk sex experience (Doyle, Mavedzenge, Plummer, & Ross, 2012).

A study done in Nigeria secondary school indicates that, 33.6% of students are sexually active; common among male than female students (42.7% vs. 23.2%). The mean age of sexual initiation is 14.8 (±2.8) years. The major predictors of risky sexual activities are male sex, lower parent–teen connectedness, having a dead parent, family polygamy, lower school connectedness and lower parental education (Slap et al., 2003).

At the same time, study conducted in Moshi, Tanzania secondary schools indicates 29% study participants are sexually active. Of them, 47.7% have more than one sexual partner, 21.6% start sexual intercourse before age of 15 and 52.2% of them did not use a condom in their last sexual intercourse (Lyimo, Todd, Richey, & Njau, 2013).

In Ethiopia, studies conducted in Nazareth, Addis Ababa, Shedi and Enemay towns showed that 24, 20.4, 19 and 67.6% of students are sexually active, respectively. Of sexual active student 33% in Nazareth, 45.6% in Addis Ababa, 24.8% in Shedi and 57% in Enemay have sex with more than one sexual partner. Regarding the condom use, 44% in Nazareth and 55.6% Addis Ababa never uses a condom. Only 28.7% sexually active youths used condom during their first sexual intercourse in Shedi town (Astatke, Black, & Serpell, 2000; Bogale & Seme, 2014; Cherie & Berhane, 2012; Dekeke & Sandy, 2014).

Even if, a numerous studies identified factors associated with youth risk sexual behaviours most of them have been focused on individual level factors. However, it is acknowledged that risky sexual behaviours are driven by social and structural factors, which are beyond an individual's control (Jessor, Turbin, & Costa, 1998; Parkhurst, 2012; Saritas & Erci, 2014; Seeley et al., 2012). This conveys new ways of looking at risky sexual behaviours among youths from social to cultural perspectives. Recognizing what initiate youth’s to risky sexual behaviours at an early age helps in designing appropriate and meaningful intervention strategies to tackle its adverse consequences. However, especially in Ethiopia little has been done to understand social connectedness of youths and its role in their sexual behaviour. Moreover, their tools did not include all domains of social connectedness and lack detail in sight.

Therefore, this study tries to describe the patterns of youth’s social connectedness with religious groups, parent, peers, school environment and social media and its correlation with risky sexual behaviour. It also identifies independent predictors of risky sexual behaviours of youths.

**Methods and materials**

**Study area and period**

The study was conducted in North Shewa zone which comprises 14 districts. Fiche town is the administrative centre of the zone, which is 112 km North of Addis Ababa. In the zone, there are 54 high schools. These high schools provide educational opportunity for 32,443 students. Out of these, 54.3% of students are male and the rest 45.7% are females. The study data were collected from February to March 2016.

**Study design and participant**

An institution-based cross-sectional study design triangulated with qualitative data was employed. All sampled students enrolled in calendar year 2015/2016 G.C in the selected high schools was included in the study. Ever married students were excluded from the study. Moreover, students who were already involved in the qualitative survey were excluded from FGDs.

**Sampling**

Multistage sampling technique was employed to select the study participants. First six districts were selected by the lottery method. Then, from each selected district, one grade 9–10 and one preparatory
school were selected by the lottery method. The sample size was proportionally allocated to each school and 9th to 12th grades and then, students were selected randomly by using computer-generated random numbers method. The sample size was calculated by using single population proportion formula by taking the value of $p = \text{the mean score of social connectedness average for all dimension converted to 100} = 50\%$ as there is no previous study done in the study area and nearby. With assumptions of 1.5 design effect, 5% margin of error, 95% confidence interval and 10% possible non-response rate, the sample size was 635 participants. In qualitative part, one school is selected purposefully. Then, 38 participants were selected using homogenous purposive sampling techniques. Four FGDs were conducted.

**Measurement and variables**

The study used a structured, pretested and translated self-administered questionnaire adapted from different literatures (Fisher, Davis, Yarber, & Davis, 2013; Goodenow, 1993; Lee & Robbins, 1998; Merakou, Costopoulos, Marcopoulos, & Kourea-Kremastinou, 2002; Resnick et al., 1997; Rosenberg, 1965; Sieving et al., 2001; Smylie et al., 2013). The instrument includes socio-demographic characteristics, social connectedness, safe sex self-efficacy belief towards safe sexual activities, sexual behaviour and substance use items. Items used for measuring social connectedness, safe sex self-efficacy and belief towards safe sexual activities elicited response on a five-point Likert scale. Scale items internal consistency was checked by Cronbach alpha greater than .7. Risky sexual behaviour information was sought on whether the participants had engaged in sexual intercourse, number of sex partners, sex before age of 18 and consistent condom use. For focus group discussion, guide which has five open-ended questions was developed by the principal investigator.

**Data collection procedures**

The data were collected using self-administered questionnaire assisted by five trained, diploma holders’ data collection facilitators. Trained supervisors at each study district controlled data collection procedures. Two-day training was given to data collection facilitators and supervisors by the principal investigator. The data were collected using self-administered questionnaire assisted by five trained data collection facilitators. Trained supervisors controlled the data collection process. Principal investigator leads the FGDs sessions. The tape recording was done with informed consent of the participant.

**Operational definitions**

**Risky sexual behaviour**

A person was said to have risky sexual behaviour if he/she is being sexually active or improper condom use or having multiple sexual partners or early sexual initiation.

**Family connectedness**

Measured by summing scores of nine Likert scale items approaching to the maximum sum scores considering as had high family connections and to minimum sum scores as had low family connectedness.

**Religious connectedness**

Measured by summing scores of nine Likert scale items approaching to the maximum sum scores considering as had high religious connectedness and to minimum sum scores as having low religious connectedness.

**School connectedness**

Measured by summing scores of seven Likert scale items approaching to the maximum sum scores considering as had high school connectedness and to minimum sum scores as having low school connectedness.
Peer connectedness
Measured by summing scores of seven Likert scale items approaching to the maximum sum scores considering as having high peer connectedness and to minimum sum scores as having low peer connectedness.

Social media connectedness
Measured by summing scores of seven Likert scale items approaching to the maximum sum scores considering as having high social media connectedness and to minimum sum scores as having low social media connectedness.

Social connectedness
Measured by summing scores of family, religion, school, peer and social media connectedness domains approaching to the maximum sum scores considering as having high social connectedness and to minimum sum scores as having low social connectedness.

High school
Schools from grade, 9th–12th.

Substance use
Was consuming alcohol or chat or smoking cigarettes in the past six months preceding the study period.

Data processing and analysis
The quantitative data were checked for completeness and consistency. Then, it was entered into the EpiData version 3.1 and exported to statistical package for social science (SPSS) version 16 for analysis. For Likert scale items, exploratory factor analysis with a factor loading score of \(>40\%\) and Varimax rotation was performed to validate the underlying dimensions. Uni-variate analyses were carried out to describe socio-demographic characteristics, sexual behaviour and social connectedness of the respondents. The total score was converted to 100% for possible comparisons of the domains. Independent t-test and one-way analysis of variance was performed to observe variation in scores of the social connectedness domains by gender, grade levels and residence of the student. In order to examine the relationship of each dimension of social connectedness with various risky behaviour indexes [number of sex partners, early sexual initiation and improper use of condom], the Spearman rank order correlation coefficient (rho) was executed. Backward likelihood logistic regression was carried out to identify independent predictors of risky sexual behaviour. Model fitness was checked using a Hosmer–Lemeshow test which was \(P\) value = .14. Odds ratios (OR) with 95% confidence intervals were calculated. Statistical significance is accepted at the 5% level \((p < .05)\).

In qualitative part, the transcription was done by principal investigator immediately after repeatedly listening to recorded voice. The transcribed data read repeatedly for emergent themes and then openly coded. The analysis was done using the thematic approach. Finally, it was triangulated with quantitative finding.

Data quality management
The instrument was originally adapted in English language and then translated into local languages Afan Oromo and Amharic language. Then, it was translated back to English by another person to check consistency. For clarity and consistency, the questionnaire was pre-tested with 32 (5%) school children of the same age of actual respondents at other similar high school (eager high school) before the actual data collection. Two-day intensive training was given for all supervisors and data collection facilitators. The principal investigator controlled overall activity. The completed questionnaires were checked and made correction on a daily basis among data collection facilitators and supervisors. One trained data
clerk had cleaned and entered the data into Epi data 3.1 and exported to SPSS 20. For qualitative part of the study, the tape recording was done with informed consent of the participant. Transcription was done immediately after each FGD.

**Ethical considerations**

Ethical Clearance Committee of Jimma University, College of Health Sciences, approved the study protocol. Permission to conduct the study was obtained from North Shewa Education Bureau. An official letter of cooperation was written to the respective schools. In order to protect confidentiality, names were not included in the written questionnaires. Informed consent was obtained also from each participant. For <18-years-old students, they were told to ask their parents’ permission to participate in the study and only those who got permission from the parents were participated.

**Result**

**Socio-demographic characteristics**

Out of 635 sampled students, 628 respondents were participating in the study, which makes the response rate of 98.9%. Accordingly, the mean age of the respondent was 17.57 ± 1.46 years with a minimum of 14 years and maximum of 24 years. From total, 628 students 332 (52.9%) of the respondents were males. The majority of the respondents, 558 (88.9%) were from the Oromo ethnic group and 567 (90.3%) were Orthodox Christian followers.

Regarding residence 350 (55.7%) of them permanently lives in the respective towns and 333 (53.0%) lives with both their biological families. Concerning the educational status of respondents’ parents, 179 (27.5%) of fathers and 288 (45.9%) of mothers were illiterate. The mean student’s monthly pocket money was 201.18 with SD ± 142. 4ETB (Table 1).

**Respondents’ sexual behaviour**

Regarding sexual activity, one hundred fifteen 115 (18.3%) of the respondents ever had sexual intercourse out of which 78 (67.8%) were males, 52 (45.2%) had sex with two or more partners. With regard to the age of sexual initiation, 45 (39.1%) were below the age of 18 years at first sex. The mean age at first sexual intercourse was 16.63 ± 1.5 years. About 72 (62.6%) of respondents had sexual intercourse in the 6 months prior to the study period. The mean time for last sexual activity was 5.94 ± 4.4 months prior to study period. During the last sexual intercourse, 36 (31.3%) did not use condoms, 29 (25.2%) took alcohol and eight (7%) have chewed chat. Out of all respondents, 115 (18.3%) have developed risky sexual behaviour. In relation to this, only 27 (23.5%) of youth consistently used condom during each intercourse (Table 2).

**Respondents’ social connectedness**

Exploratory factor analysis was done in five dimensions of social connectedness domains; KMO = .921, Bartlett’s Test of Sphericity $p = .000$. Accordingly, the nominated items explained 50.0% of the variance of social connectedness. Of them, family connectedness accounted for the largest percentage (25.9%), followed by religious connectedness (9.6%), school connectedness (5.2%), peer connectedness (4.8%) and social media connectedness (4.5%) (Table 3).

The overall social connectedness score of the respondent was 77.8, SD ± 10. Of all social connectedness domains, high score was obtained on family connectedness (84.5, SD ± 17.1), whereas a lower score was on social media connectedness domain (65.3, SD ± 9.7). FGD participant explained connectedness with family, religion, school and friend is higher than social media. From family members, most of them have a connection with their mothers.
A 15 years female participant said; ‘Most of the time I discuss issues with my family members, especially my mother and this give a high feeling of belongs to my family. I have good girlfriends. We study and walk to school together. We support each other in any difficulties. Really, we are very happy to be with each other’s’.

A 17 years male student said, ‘I am sociable person I interact with every person in my surrounding as well as at school. I also participate in religious activities at church. In such places, activities are done in-group and most of the time every other day we meet together. I use social media sometimes only when I have internet access’.

The relationship between social connectedness domains was examined using Pearson correlation coefficient. A higher correlation exists between family and spiritual connectedness ($r = .616$, $p = .000$). Social media connectedness has low correlation with other domains. Of which higher was with peer ($r = .245$, $p = .000$).

Independent sample t-test result showed that, of domains only peer connectedness had statistically significant difference between sex ($F_{627} = .017$). The peer connectedness score of females (79.4, SD ± 15.6) is significantly lower than that of males (81, SD ± 13.4). Similarly with regard to a permanent place of residence, students who permanently live in their respective town have a significantly lower family connectedness ($F_{626} = .020$), peer connectedness ($F_{626} = .027$) and spiritual connectedness

| Characteristics (n = 628)       | Frequency (n = 628) | Per cent (%) |
|---------------------------------|--------------------|--------------|
| **Age**                         |                    |              |
| <15                             | 1                  | 2            |
| 15–19                           | 577                | 91.8         |
| 20–24                           | 50                 | 8.0          |
| **Sex**                         |                    |              |
| Male                            | 332                | 52.9         |
| Female                          | 296                | 47.1         |
| **Grade**                       |                    |              |
| 9th                             | 252                | 40.1         |
| 10th                            | 180                | 28.7         |
| 11th                            | 108                | 17.2         |
| 12th                            | 88                 | 14.0         |
| **Ethnicity**                   |                    |              |
| Oromo                           | 558                | 88.9         |
| Amhara                          | 66                 | 10.5         |
| Tigre                           | 3                  | .5           |
| Other*                          | 1                  | .2           |
| **Religion**                    |                    |              |
| Orthodox                        | 567                | 90.3         |
| Protestant                      | 38                 | 6.1          |
| Muslim                          | 10                 | 1.6          |
| Catholic                        | 6                  | 1.0          |
| Other**                         | 7                  | 1.1          |
| **Are you permanent resident in the town?** |                   |              |
| Yes                             | 350                | 55.7         |
| No                              | 278                | 44.3         |
| **Living arrangement**          |                    |              |
| Both biological family          | 333                | 53.0         |
| Friends                         | 86                 | 13.7         |
| Alone                           | 79                 | 12.6         |
| Mother only                     | 42                 | 6.7          |
| Relatives                       | 39                 | 6.2          |
| Grandparents                    | 19                 | 3.0          |
| One biological and stepfather/mother | 10             | 1.6          |
| Father only                     | 6                  | 1.0          |
| Other***                        | 14                 | 2.2          |
| **Father educational status**   |                    |              |
| Illiterate                      | 173                | 27.5         |
| Read and write                  | 124                | 19.7         |
| Elementary (1–8)                | 189                | 30.1         |
| Secondary (9–12)                | 76                 | 12.1         |
| College diploma and above       | 66                 | 10.5         |
| **Mother educational status**   |                    |              |
| Illiterate                      | 288                | 45.9         |
| Read and write                  | 90                 | 14.3         |
| Elementary (1–8)                | 144                | 22.9         |
| Secondary (9–12)                | 67                 | 10.7         |
| College diploma and above       | 39                 | 6.2          |

*Gurage; **Wakefetta; ***With sister, with brother.
(F_{626}, p = .026) score than those who were not. Most FGD participants identify this difference in social
connectedness was a result of duties and restrictions that youths encountered when they live with
their family.

One 17 years male student said; ‘... student like me who currently live with their family are under control of their
family and have different duties at home. Most of the time I am not allowed to stay more time out of home, at
church, or with my friends as I want.’

A one-way analysis of variance result showed that social media connectedness (F_{627}, p = .002) and
school connectedness (F_{627}, p = .007) are significantly different across grade levels. The post hoc
test was used to identify the source of the significant omnibus F for these two domains, and revealed
the score of social media connectedness of grade 11 students (62.6, SD ± 10.7) was significantly lower
than that of grade 9 (66.1, SD ± 9.5) p = .009 and 10 (66.4, SD ± 9.3) p = .007, respectively. Regarding
school connectedness, the score of grade 9 students (81.5, SD ± 12.9) was significantly higher than that
of grade 11 (76.5, SD ± 16.7) at p = .020.

**Respondents’ substance use behaviour**

The study showed that 43 (6.8%) of the respondents reported ever used any kind of substance. Among
substance users, 36 (83.7%) drunk alcohol, 11 (25.6%) chewed chat and seven (16.3%) smoked cigarette
in the past six months.

**Self-efficacy and belief towards safe sexual activities**

The score of belief towards safe sexual activities of the students was 40 ± 6 and that of self-efficacy was
32.8 ± 5.8. There was no significant difference in these scores between gender and permanent residence.
However, self-efficacy (F_{627} = 3.717, p = .011) and belief towards safe sexual activity (F_{627} = 3.868,
p = .009) significantly different across grade levels. The post hoc test was used to identify the source of
the significant omnibus F for these variables, and revealed the score of self-efficacy of grade 9 students
(33.6, SD ± 5.6) was significantly higher than that of grade 11 (31.8, SD ± 5.8) p = .045. Similarly, the
score of belief towards sexual activity of grade 9 students (39.1, SD ± 5.9) was significantly lower than
that of grade 12 (41.2, SD ± 5.9) p = .032.
Table 3. Factor structure of social connectedness sub-scales of youths in North Shewa zone, Oromia region, Ethiopia, February, 2016.

| Items                                                                 | Factor 1 (Family) | Factor 2 (Religion) | Factor 3 (School) | Factor 4 (Peer) | Factor 5 (Social media) |
|-----------------------------------------------------------------------|-------------------|---------------------|-------------------|-----------------|--------------------------|
| My family cares a lot about me                                         | .829              |                     |                   |                 |                          |
| My family is warm and loving toward me                                 |                   | .818                |                   |                 |                          |
| My family pays a lot of attention to me                                |                   |                     | .809              |                 |                          |
| My family and I agree a lot                                           |                   |                     |                   | .796            |                          |
| My family encourages me                                                |                   |                     |                   |                 | .789                      |
| I enjoy spending time with my family                                   |                   |                     |                   |                 | .759                      |
| I am satisfied with relationship I have with my family                 |                   |                     |                   |                 | .739                      |
| I talk to my family when I have problems                               |                   |                     |                   |                 | .681                      |
| I have a lot of fun with my family                                     |                   |                     |                   |                 | .589                      |
| I ask people to pray for me                                            |                   | .835                |                   |                 |                          |
| I get strength and support from people in my religion                  |                   |                     |                   |                 | .776                      |
| I regularly participate in religious activities                         |                   |                     |                   |                 | .745                      |
| I give spiritual advice                                                |                   | .724                |                   |                 |                          |
| I voluntarily help others in my religion                               |                   | .700                |                   |                 |                          |
| I listen religious song                                                |                   |                     |                   |                 | .667                      |
| I regularly read my faith script                                       |                   |                     |                   | .603            |                          |
| My religious belief makes me happy                                     |                   |                     |                   |                 | .596                      |
| I regularly pray                                                       |                   |                     |                   |                 | .496                      |
| I feel close to people at school                                       |                   |                     |                   |                 | .852                      |
| I feel like I am part of my school                                     |                   |                     |                   |                 | .735                      |
| I feel safe in my school                                               |                   |                     |                   | .705            |                          |
| My teachers care about me                                              |                   |                     |                   |                 | .687                      |
| I feel happy to be in my school                                       |                   |                     |                   |                 | .668                      |
| I am included in a lot of activities at school                          |                   |                     |                   |                 | .576                      |
| I talk to my teachers when I have a problem                            |                   |                     |                   |                 | .516                      |
| I find myself actively involved in my friends' lives                   |                   |                     |                   |                 | .725                      |
| My friends feel like family                                            |                   |                     |                   |                 | .690                      |
With regard to risky sexual indexes, safe sex self-efficacy score of youth who have only one sexual partner and use condom consistently was significantly higher than those who have multiple sexual partner and use condom inconsistently ($t_{113} = 2.287, p = .024$) and ($t_{113} = 2.689, p = .008$), respectively.

Similarly, youth who develop risky sexual behaviour have lower belief score than those who were not ($t_{626} = 3.509, p = .000$).

Relationship between social connectedness and risky sexual activity

Youths who had a single sexual partner have significantly higher family ($t_{113} = 12.557, p = .000$), religion ($t_{113} = 3.423, p = .000$) and school ($t_{113} = 6.463, p = .000$) connectedness than those who had multiple sexual partner. Youths who have used condoms consistently have significantly higher family ($t_{93} = 3.860, p = .000$), religion ($t_{93} = 2.422, p = .017$) and school ($t_{93} = 2.728, p = .008$) connectedness than those who were not. With regard to overall risky sexual behaviour, youths who have developed risky sexual activity have significantly lower family ($t_{626} = 19.126, p = .000$), religion ($t_{626} = 15.215, p = .000$) and school ($t_{626} = 13.641, p = .000$) connectedness than those who were not.

Social connectedness with family ($\rho = -.761, p = .000$), religion ($\rho = -.793, p = .000$) and school ($\rho = -.538, p = .000$) domains were significantly and inversely correlated with having multiple sexual partners. Whereas, connectedness with a friend and social media was significantly and directly correlated
with having multiple sexual partner ($\rho = .213, p = .001$) and ($\rho = .208, p = .001$). At the same time, family ($\rho = -.376, p = .000$), spiritual ($\rho = -.213, p = .022$) and school ($\rho = -.327, p = .000$) connectedness domains were significantly and inversely correlated with using condoms. Conversely, early sexual initiation was not correlated with neither of social connectedness domains. Developing overall risky sexual behaviour were significantly and inversely correlated with family ($\rho = -.338, p = .019$), religion ($\rho = -.422, p = .000$) and school ($\rho = -.434, p = .000$) connectedness domains.

Additionally, overall social connectedness was significantly and inversely correlated with having multiple sexual partners ($\rho = -.722, p = .000$), use of condoms ($\rho = -.333, p = .000$) and overall risky sexual behaviour ($\rho = -.464, p = .000$). So, this means, higher scores family, religion, school and overall social connectedness as well as lower score of peer and social media connectedness were correlated with reduced risky sexual behaviours (Table 4).

FGD participants explained advice from family, conventional belief from religious people and academic performance enables youths to save themselves from risky sexual activities.

A 17 years old male student said that; ‘I participate in religious activities ... I engage in social support activities, which tie to the broad community. As a result, I did not engage in sexual behaviors until now.’

A 15 years old female students said that; ‘let us take outstanding students. They spend most of their time on studying their lessons, another student respect them and most of their teachers love them. Such students even will not want to be seen with opposite sex.’

### Independent predictors of risky sexual behaviour

In bi-variate analysis, age, sex, grade level, living arrangement, household income, substance use, beliefs toward safe sexual activities, family connectedness, religious connectedness, school connectedness, peer connectedness and social media connectedness have showed significant association with risky sexual behaviour at $p < .25$ and were candidate for multi-variable regression analysis. Multivariate logistic regression analysis was done to identify independent predictors of risky sexual behaviour. Education level, substance use, religious connectedness, family connectedness and school connectedness were significant predictors of risky sexual behaviour. Grade 10 students were 2.3 times more likely to be at risk than grade nine students were ($AOR = 2.30, 95\%CI (1.20–4.41)$). With regard to substance use, substance user students have four times, risky sexual behaviours than non-users ($AOR = 4, 95\%CI (1.54–10.3)$). For a unit increase in the total score of family connectedness of the student, the odds of becoming at risk were reduced by .39 ($AOR = .39, 95\%CI (.303–.51)$). For a unit increase in the total score of religion connectedness of the student, the odds of becoming at risk were reduced by .23 ($AOR = .23, 95\%CI (.169–.31)$). For a unit increase in the total score of school connectedness of the student, the odds of becoming at risk were reduced by .39 ($AOR = .39, 95\%CI (.297–.52)$) (Table 5).
Discussion

This study provides an insight into the operation of different dimensions of social connectedness, substance use, and self-efficacy towards safe sexual activities as factors to predict risky sexual behaviour among youths in North Shewa Zone Oromia region. As a result, 18.3 and 11.5% of youths had sex ever and in the past six months preceding the study with more males than females (67.8% vs. 32.2%). This study result is similar to studies done in Addis Ababa and Shedi town in Ethiopia (Bogale & Seme, 2014; Cherie & Berhane, 2012). However, it is very low compared to studies done in Nigeria and Tanzania (Lyimo et al., 2013; Slap et al., 2003). This difference might be the result of cultural differences, the availability of risk factors and community norms.

Of youths who have already started sex 52 (45.2%) of them had sex with two or more partners. This study finding is nearly similar to studies done in Addis Ababa and Tanzania (Cherie & Berhane, 2012; Lyimo et al., 2013). However, it is higher than study done in Jimma, Nazareth and Shedi and lower than that of the Enemay district (Astatke et al., 2000; Bogale & Seme, 2014; Dekeke & Sandy, 2014; Abebe, Tsion, & Netsanet, 2013). The possible reason might be differences in sociocultural and demographic characteristics of the study participants.

Of those who ever had sex only 27 (23.5%) of them consistently used condom during each intercourse. This study finding is higher than study done in Jimma (Abebe et al., 2013). Moreover, 31.3% of them did not use condoms during last intercourse. This finding is lower than studies done in the USA and Tanzania (Guy, Addy, & Christine, 2003; Lyimo et al., 2013). The possible reason may the difference in socio-demographic characteristics and culture. Thirty-nine per cent of them were under the age of 18 years at first sex. This finding is lower than study done in Enemay (Dekeke & Sandy, 2014). The mean age at first sexual intercourse was 16.63 ± 1.5 years. This finding is similar to studies done in Shedi and higher than study done in study Nigeria. The possible justification was socio-economic status difference between these countries (Bogale & Seme, 2014; Slap et al., 2003).

Nearly, 18 per cent of the students had developed risk in their sexual contact. This study result is much lower than study done in the Jimma zone (Abebe et al., 2013). This difference may be the result of differing in availability of risk factor and socio-demographic status.

Regarding social connectedness, the study revealed that youths' social connectedness were higher on most of the domains except for social media connectedness. Lack of Internet and mobile phone access to use social media was the main factor that reduces social media connectedness. This finding

Table 5. Multivariable analysis of risky sexual behaviours among youths in North Shewa zone, Oromia region, Ethiopia, 2016.

| Explanatory variables | No risk | At risk | Crude OR (95%CI) | Adjusted OR (95%CI) |
|-----------------------|---------|---------|-----------------|---------------------|
| **Age*** | 17.47 | 18.00 | .78 (.68–.90)** | 1.07(.86–1.34) |
| **Sex** | 254(49.5%) | 78(67.8%) | 2.15(1.40–3.30)** | .76(.42–1.36) |
| Male | 259(5.5%) | 37(32.2%) | 1 | 1 |
| Female | 2808.82 | 2392.52 | 1.00(1.00–1.00) | 1.00(1.00–1.00) |
| **House hold income*** | 219(42.7%) | 33(28.7%) | 1 | 1 |
| **Grade level** | 140(27.3%) | 40(34.8%) | .70(.46–1.08) | .69(.42–1.15) |
| 9th | 83(16.2%) | 25(21.7%) | 1.00(1.00–1.00) | 1.91(1.88–4.12) |
| 10th | 274(53.4%) | 59(51.3%) | 1.00(1.00–1.00) | 1.55(1.53–4.41) |
| 11th | 29(5.7%) | 13(11.3%) | .47(.24–.94)* | .15(.83–3.16) |
| **Living arrangement** | 75(14.6%) | 11(9.6%) | 1.62(1.33–2.94) | .79(1.31–2.00) |
| Both biological family | 495(96.5%) | 90(78.3%) | 1 | 1 |
| Mother only | 40.42 | 38.25 | 1.06(1.03–1.10)** | .95(1.01–1.10) |
| Friends | 84.28 | 57.10 | 2.20(1.81–2.68)** | .39(1.03–5.11)** |
| **Substance use** | 88.68 | 65.72 | 3.47(2.73–4.42)** | .23(169–31)** |
| Yes | 83.01 | 64.57 | 2.09(1.71–2.57)** | .39(297–52)** |
| No | 80.15 | 80.15 | .79(.64–.989)* | 1.09(.81–1.46) |
| **Beliefs toward safe sexual activities*** | 65.21 | 66.04 | .76(.61–.94)* | 1.25(.92–1.70) |
| **Family connectedness*** | 495(96.5%) | 90(78.3%) | 1 | 1 |
| **Spiritual connectedness*** | 84.28 | 57.10 | 2.20(1.81–2.68)** | .39(1.03–51)** |
| **School connectedness*** | 88.68 | 65.72 | 3.47(2.73–4.42)** | .23(169–31)** |
| **Peer connectedness*** | 83.01 | 64.57 | 2.09(1.71–2.57)** | .39(297–52)** |
| **Social media connectedness*** | 80.15 | 80.15 | .79(.64–.989)* | 1.09(.81–1.46) |
| Yes | 75(14.6%) | 11(9.6%) | 1.62(1.33–2.94) | .79(1.31–2.00) |
| No | 495(96.5%) | 90(78.3%) | 1 | 1 |

*p-value < .05; ”p-value < .01; ”Continuous variable; Bold:Significant variables.
is different from the study done in Addis Ababa (Cherie & Berhane, 2012). The difference is the result of differences in access to Internet service. However, youths achieved higher social connectedness with their family members. This may be because almost all youths at this level live with and get both perceived and actual support from their family members.

Family connectedness, religion connectedness, school connectedness and overall social connectedness were inversely correlated with having multiple sexual partners, condom use and overall risky sexual behaviour. While, social media connectedness and peer connectedness directly correlated with having multiple sexual partners. Meaning higher score to the family, religion, school and overall connectedness correlated with lower of the number of sexual partners, use of condom and reducing risky sexual behaviour among youths. Likewise, lower score of social media and peer connectedness was correlated with lower of the number of sexual partners. This is may be due to strong advice and support youths get from family, religious and school connectedness (O'Brien et al., 2013; Smith, 2003).

Grade 10 students were more likely to be at risk than grade nine students were. This study finding is similar to a study done with Dessie high school (Abdulhakim, 2008) in which increase in the grade level associated with increased risk sexual behaviour. This is may be during the youth period as the age increases there is an increased interest in sexual activities.

Taking any substances of alcohol, chat and a cigarette was a significant predictor of risky sexual behaviour among youths. Youths who take substance have higher probability to be engaged in risky sexual activities. This study result is similar to studies done in Nazareth (Astatke et al., 2000). This may be due to the effect of the drugs. After taking substances they may be unaware of their behaviours and more likely engaged in risky sexual practices even with unknown partners.

Family connectedness was another factor significantly associated with risky sexual behaviour of youths. Youths with strong family connectedness are less likely practice risky sexual activity. This study finding is similar to studies done in USA, Nigeria and Jimma, Ethiopia (Abebe et al., 2013; Guy et al., 2003; Slap et al., 2003). Similarly, higher religion connectedness of youths was protective against risky sexual activities. This study finding is similar to studies done in Enemay district in Ethiopia and several other studies in developing countries (Bogale & Seme, 2014; Rostosky, Wilcox, Wright, & Randall, 2004). This is may be due to conventional advices and support youths get from family to religious connectedness.

School connectedness was another significant factor associated with risky sexual behaviour among youths. Youths who have a high school connectedness were less likely engaged in risky sexual activity; while low school connectedness associated with higher risky sexual behaviours. This study finding is similar to studies done in Nigeria and Addis Ababa in which risky sexual behaviours are associated with less youths connectedness with the school environment (Cherie & Berhane, 2012; Slap et al., 2003). From this study, we learn that promoting youth’s social connectedness with family, religious institution and the school environment is an imperative prevention method of sexual risk behaviours.

**Conclusion**

Considerable amounts of youths were engaged in risky sexual activity at an early age. Of sexually active youths, most of them were subjected to multiple sexual partner and unprotected sex.

Youth have high scores on family connectedness and low score on social media connectedness. The score of social connectedness domains varies across sex of the participant, residence and grade levels.

Youth high scores of family connectedness, religion connectedness, school connectedness and overall social connectedness were correlated with increased condom use, decreased number of sexual partners and reduced risky sexual behaviours. However, high score of peer and social media connectedness was correlated with increased number of sexual partners.

Grade level, substance use, religious connectedness, family connectedness and school connectedness were major predictors of risky sexual behaviour.
Author contributions

SH YK SNM conceived and designed the experiments. SH YK SNM performed the experiments. SH analysed the data. SH YK SNM contributed reagents/materials/analysis tools. SH YK SNM wrote the paper.

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No potential conflict of interest was reported by the authors.

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