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ORIGINAL RESEARCH

Predictors of Condom Use Among Youth of the Rural Tigray, Northern Ethiopia: Community-Based Cross-Sectional Study

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Background: Condom is one of the most commonly used and cost-effective HIV preventive measures, particularly in low-income countries. Despite the proven effect of condoms for STI/HIV prevention, there are limited data on its utilization. Hence, this community-based study aimed to assess the level and determinant factors of condom utilization among the youth of the rural Tigray.

Methods: This study was part of a large community-based cross-sectional study conducted to assess the utilization of adolescent and youth-friendly health services among randomly selected 631 youth aged 15–24 years from May 23 to June 30, 2018. We used 273 youth who reported having a history of sexual activity during the study period. The data were collected using an interviewer-administered structured questionnaire. Logistic regression analysis was used to determine the independent predictors of the outcome variable and the level of significance was declared at a P-value of <0.05.

Results: A total of 273 participants were included in the study. The mean age (+SD) of the respondents was 19.14 (±2.74) years. Only one-third (35.2%) of the respondents used a condom during their last sexual encounter and 51 (53.1%) of them used it consistently. Being married (AOR = 0.17; 95% CI: 0.04, 0.60), respondent's partner attained primary education (AOR = 0.14; 95% CI: 0.04, 0.50), and having multiple sexual partners (AOR = 6.97; 95% CI: 2.09, 23.20) were found to be the determinants of condom utilization.

Conclusion: The study participants had a low level of condom utilization. Social and sexual related factors were the major predictors of condom use among the youth. Therefore, focused interventions need to be designed specifically to strengthen condom promotion campaigns.

Keywords: condom use, youth, rural Tigray, Ethiopia

Introduction

HIV continues to be a major global public health issue despite the increasing access to effective HIV prevention, diagnosis, treatment, and care. The key population groups account for more than 60% of all new HIV infections globally. Adolescents and the young are among the vulnerable and at increasing risk of HIV infection.[1] In response to the HIV epidemic; various effective preventive interventions have been implemented all over the world. Condom is one of the most commonly used and cost-effective HIV preventive measures, particularly in low-income counties.[2] Globally, the use of condoms consistently ranges from 4 to 52.4% among the young sexually active population.[3] This implies that many young individuals are at higher risk of acquiring and transmitting HIV mainly related to a lack of adequate knowledge and skill to use condoms properly. Condom utilization is even more complicated in Africa particularly Sub-Saharan Africa (SSA) including Ethiopia because of socio-cultural, behavioral, and economic impediments.[4]

In African countries, reports showed that the inconsistency of condom utilization among countries, regions, and localities is related to socio-cultural, structural, economic, behavioral, and personal factors.[5] According to the findings of various studies in SSA, the use of condoms among the youth ranged from 38.6% to 57.8%[6–9] and this visible variation

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among the countries might be due to failure to implement the existing strategies in response to HIV perhaps influenced by structural, socio-cultural and economic factors.

Ethiopia has demonstrated a commitment to end HIV/AIDS by 2030 by setting different strategies. Among the proven strategies, condom use is one of the most effective behavioral interventions used in the prevention of HIV/AIDS.[10] However, the level of condom utilization remarkably varies from region to region and from district to district possibly due to the underlying causes that determine the variation in condom utilization similar to the other African countries. A pooled data from five regions of Ethiopia including Amhara, Benishangul-Gumuz, Oromiya, Southern Nations, Nationalities, and Peoples' Region (SNNP), and Tigray regions reported condom use of 56%.[11] Moreover, studies on condom use among university students in Ethiopia indicated that the use of condom ranged from 35.6% at Axum University to 45.5% at Debre-Berhan University.[12–15] This might be very logical as the proven interventions to mitigate the HIV burden are not equally implemented across the regions.

It is well evidenced that consistent and correct use of condoms has been effective to reduce the risk of exposure to HIV and other sexually transmitted infections (STIs). However, previous studies have reported various reasons for inconsistent and non-use of condoms to prevent HIV and other sexually transmitted infections among young people; these include trust, partner refusal, low perceived sexual pleasure, low perceived risk, having a steady sexual partner, unavailability of condom, shame and stigma of buying condoms.[5,7,16]

On the contrary, various factors have been linked to the utilization of condoms among the young population to prevent STI/HIV. For instance, discussion of HIV/STIs with a sexual partner, knowing the partner's HIV status, residing in HIV prevalent area, self-efficacy and optimism about the future, talking with a first sexual partner, and engaging in sex with only a steady partner were found the predictors of condom use among youth.[7,17]

In Ethiopia, particularly in Tigray, most previous studies on condom utilization or HIV prevention were conducted in institutions such as schools, colleges, universities, and health facilities where information about condom utilization is more accessible. Moreover, most of the studies involved a key population and patients on ART treatment and care. Little attention was given to the community-based study among the young sexually active population who are at risk of STI/HIV despite its significant importance in carrying out interventions that enhance the utilization of condoms and reduce potential barriers to the use of condoms. Therefore, this study aimed to assess the level of condom utilization and its predictors among the youth of rural Tigray, Northern Ethiopia.

Materials and Methods

Study Design, Population and Setting

A community-based cross-sectional study design was employed from May 23 to June 30, 2018, among youths aged 15 to 24 years. Tigray region is administratively divided into seven zones, and the study was conducted in the eastern zone which has 9 districts. According to the 2017 population projection, the total population in the study area was estimated to be 917,000, and young people aged 15–24 years contributed about 20%.[18] The Italian non-governmental organization "Comitato Collaborazione Medica" (CCM) was supporting 20 health facilities in seven rural districts of the zone. Mainly the organization targeted the strengthening of adolescent and youth-friendly health services through a motto of "Youth at the center".[19]

Sample Size Determination and Sampling Procedure

This study was part of a large study that had been conducted to assess the utilization of adolescent and youth-friendly health services among the rural youth aged 15–24 years in the Eastern zone of Tigray (unpublished). The sample size was calculated using a single population proportion formula with the following assumptions; the proportion of youth who utilized adolescent and youth-friendly health services was 50%, the margin of error was 5%, the design effect 1.5, 95% confidence level and adding 10% for the non-response rate, the final sample size was 634, and we used 273 individuals who reported having history sexual activity during the study period.

A multistage sampling technique was used to select the study participants. Seven rural districts of the eastern zone of Tigray were selected purposively; as these were under the CCM project. From each district, two health centers and two kebelles from a catchment area of each facility were selected randomly. The study samples were proportionally allocated

to the youth population residing in the selected 14 kebelles (the smallest administrative unit in Ethiopia) using a sampling frame developed by health extension workers in each kebelles. Then, households were randomly selected and one youth was selected per the selected household randomly, and replacement was made for absences on the first visit.

Study Variables

The dependent variable for this study was condom utilization, with a dichotomous response of "Yes" if the person had used a condom; "No", if they did not use a condom. The independent variables were socio-demographic variables (age, sex, religion, residence, marital status, educational status, partner's educational status), sexual behavior (sexual activity and number of sexual partners), and decision-making for health care spending.

Data Collection Tool and Procedure

The data were collected using an interviewer-administered structured questionnaire which was adapted from different literatures. It included information on sociodemographic characteristics and sexual behavior (sexual debut, number of sex partners, condom utilization). The questionnaire was initially prepared in English and then translated into local languages Tigrigna and back translated to English and checked for its consistency.

Data Quality Management

In order to maintain the quality of data, a standardized data collection instrument was used; training was given to data collectors and supervisors on the objective of the study, interview technique, informed consent, and confidentiality. The questionnaire was pretested on 5% of the youth residing in the non-selected kebelles and a necessary amendment was made based on the findings of the pretest. During the data collection period, completeness and consistency were checked by the supervisors on a daily basis. Due to the sensitive nature of the questions, the interviewers were the same gender and can speak the local language of Tigrigna.

Data Processing and Analysis

The data were entered into Epi-Data software version 3.1 and then exported to the statistical software package for social sciences (SPSS) version 23 for analysis. Data cleaning was done; descriptive statistics such as frequency, proportion, and numerical summary measures were employed to describe the characteristics of study participants and presented using tables. Bivariate analysis was done to investigate the association between the outcome variable and each independent variable and those with a p-value of <0.25 were further analyzed using multivariable logistic regression models to identify the independent predictors of the outcome variables. The odds ratio with a 95% confidence interval was calculated to identify the association between the dependent and independent variables, and the level of significance was declared at a p-value of <0.05.

Result

Socio-Demographic Characteristics of Study Participants

A total of 273 participants were included in the study. The mean (± SD) age of respondents was 19.14 (± 2.74) years. More than half of the respondents were females (n = 163, 59.7%) and nearly two-third were married (n = 160, 58.6%). The majority of the participants were rural residents (n = 242, 88.6%) and less than half of the respondents attained secondary education (n = 119 43.6%). Most of the participants were Orthodox Christianity followers (n = 232, 85.0%) and two hundred thirty (84.3%) were from Tigray ethnic group followed by Erob (n = 32, 11.7%) (Table 1).

Participant Characteristics Related to Sexual Behavior and Condom Use, Eastern Zone, Tigray, Northern Ethiopia

In this study, only one-third (n = 96, 35.2%) of participants had ever used condoms during their sexual activity and (n = 31, 32.3%) used the condom in the last 6 months preceding the survey. Fifty-one (53.1%) of the respondents used a condom consistently and 41 (42.7%) used it sometimes. More than half (n = 55, 57.3%) of the sexually active youth reported that

Table 1 Socio Demographic Characteristics of Participants Aged 15–24 Years, Eastern Zone, Tigray; Northern Ethiopia (N = 273)

Variables	Frequency	Percent
Age		
15–19	63	23.1
20–24	210	76.9
Sex		
Male	110	40.3
Female	163	59.7
Religion		
Orthodox	232	85.0
Catholic	20	7.3
Muslim	21	7.7
Ethnicity		
Tigrean	230	84.3
Erob	32	11.7
Afar	11	4.0
Place of residence		
Semi-urban	31	11.4
Rural	242	88.6
Marital status		
Un married	113	41.4
Married	160	58.6
Educational status		
Illiterate	22	8.0
Primary	132	48.4
Secondary and above	119	43.6
Partner's educational status (211)		
Illiterate	36	17.1
Primary	65	30.8
Secondary and above	110	52.1
Person with whom respondents live		
Parent	157	57.5
Partner	88	32.2
Relatives	28	10.3

they got the condom from health facilities, followed by 19 (19.8%) from a private pharmacy. The reasons for the non-use of condoms reported by respondents were: inaccessibility of condoms, dislike of condoms, refusal of a partner to use a condom, and embarrassment to ask a partner to use a condom. One-fifth (n = 59, 21.6%) of participants reported that they had more than one sexual partners (Table 2).

Factors Associated with Condom Utilization Among Youth, Eastern Zone, Tigray

In the bivariate analysis age, sex, marital status, residence, educational status, partner's educational status, living status, decision making for their health care spending, and having multiple sexual partners were significantly associated with the utilization of condoms.

In multivariable analysis, three variables showed a significant association, namely: marital status, partner's educational status, and having multiple sexual partners. Accordingly, the odds of condom use was nearly 7 times higher among

Table 2 Participant Characteristics Related to Sexual Behavior and Condom Use, Eastern Zone, Tigray; Northern Ethiopia (N = 273)

Variables	Frequency	Percent
Ever used condom during sexual intercourse (n=273)		
Yes	96	35.2
No	177	64.8
When do you use condoms (n=96)		
Within 6 months preceding the survey	31	32.3
6 months up to one year	28	29.2
A year back	37	38.5
Frequency of condom use (n=96)		
Always	51	53.1
Some times	41	42.7
Rarely	4	4.2
Place where condoms are obtained (n=96)		
Health facility	55	57.3
Private pharmacy	19	19.8
Other sources*	22	22.9
Having multiple sexual partner (n=273)		
Yes	59	21.6
No	214	78.4
Decision making for health care spending (n=273)		
Self	141	51.7
Partner	64	23.4
Parents	68	24.9

Note: *Other sources: shop, brought by my husband/ partner, condom station.

youth who reported having multiple sexual partners [AOR 6.97, (95% CI: 2.09, 23.2)] compared to those with a single-sex partner. On the contrary, married participants had 83% less likely to use condoms than unmarried youth [AOR 0.17, (95% CI: 0.04, 0.60)]. Similarly, the likelihood of condom use was 86% less among those who reported their partner's educational status was primary education compared to those whose partners were above secondary education [AOR 0.14, (95% CI: 0.04, 0.5)] (Table 3).

Table 3 Logistic Regression Analysis of Factors Associated with Condom Utilization Among Youth, Eastern Zone, Tigray; Northern Ethiopia (N = 273)

Variables	Condom Use		COR	CI 95%		AOR	CI 95%	
	No (n=177)	Yes (n=96)		Lower	Higher		Lower	Higher
Age								
15–19 years	34 (54.0)	29 (46.0)	1.00			1.00		
20–24 years	143 (68.1)	67 (31.9)	0.54	0.30	0.97	0.84	0.25	2.83
Sex								
Male	40 (36.4)	70 (63.6)	1.00			1.00		
Female	137 (84)	26 (16.0)	0.10	0.06	0.19	1.07	0.32	3.53

(*Continued*)

Table 3 (Continued).

Variables	Condom Use		COR	CI 95%		AOR	CI 95%	
	No (n=177)	Yes (n=96)		Lower	Higher		Lower	Higher
Residence								
Rural	162 (66.9)	80 (33.1)	1.00			1.00		
Semi-urban	15 (48.4)	16 (51.6)	2.16	1.01	4.58	2.09	0.60	7.21
Educational status								
Secondary +	69 (58.0)	50 (42.0)	1.00			1.00		
Primary	90 (68.2)	42 (31.8)	0.64	0.38	1.07	1.88	0.68	5.17
Illiterate	18 (81.8)	4 (18.2)	0.30	0.09	0.96	0.34	0.01	9.42
Marital status								
Un married	34 (30.1)	79 (69.9)	1.00			1.00		
Married	143 (89.4)	17 (10.6)	0.05	0.02	0.09	0.17	0.04	0.60*
Partner's educational status								
Secondary +	75 (68.2)	35 (31.8)	1.00			1.00		
Primary	57 (87.7)	8 (12.3)	0.31	0.13	0.72	0.14	0.04	0.50*
Illiterate	33 (91.7)	3 (8.3)	0.14	0.03	0.64	0.22	0.03	1.47
Person with whom respondents live								
Parents	81 (51.6)	76 (48.4)	1.00			1.00		
Partner	81 (92.0)	7 (8.0)	0.09	0.04	0.21	0.74	0.18	2.96
Relatives	15 (53.6)	13 (46.4)	0.92	0.41	2.06	1.67	0.30	9.21
Having multiple sexual intercourse								
No	157 (73.4)	57 (26.6)	1.00			1.00		
Yes	20 (33.9)	39 (66.1)	5.37	2.89	9.96	6.97	2.09	23.2*
Decision making for health care spending								
Self	78 (55.3)	63 (44.7)	1.00			1.00		
Partner	60 (93.8)	4 (6.2)	0.08	0.02	0.23	0.24	0.05	1.16
Parents	39 (57.4)	29 (42.6)	0.88	0.49	1.60	1.39	0.46	4.16

Note: *Statistically significant at P<0.05.
Abbreviations: COR, Crude Odds Ratio; AOR, Adjusted Odds Ratio; CI, Confidence Interval.

Discussion

This study assessed the magnitude and determinants of condom utilization among the rural youth aged 15–24 years. The finding of the study showed that condom utilization was low; only one-third of the participants had used a condom and almost half of them used it consistently. This finding is lower than studies conducted in Addis Ababa, Bale, and Cameroon.[20–22] This variation might be due to the fact that these studies were conducted among high school and undergraduate students who have more exposure to sexuality issues and a better understanding of STIs including HIV. Moreover, as most of the study participants in this study were from rural areas, access to condom might be limited and social barriers such as a feeling of shamefulness to buy a condom might contribute to the low utilization of condom.

Condom utilization could be influenced by several factors; for instance in our study having multiple sexual partners, being married and the respondent's partner being attained only primary education were found significant predictors of condom use. Study participants who reported having multiple sexual partners were almost seven times more likely to use condom compared to those who reported a single partner. This might be due to difference in risk perception; participants who had multiple sexual partners could have high level of risk perception towards STI/HIV than those with a single partner. This is consistent with a report from a systematic review on the impact of correlation between condom use and sexual contact pattern.[23] However, this finding disagrees with the studies reported in Debre Birhan and South Africa.[24,25]

This finding also showed that married individuals were 83% less likely to use condoms than unmarried individuals. Studies conducted in Nepal, South Africa, Zambia, and Nigeria were in line with our findings.[17,26–28] This might be explained by the use of condoms decreases among partners with a steady relationship. The reason for the non-use of condoms could be trust in their partner, opposition from a partner, and knowing their partner's HIV status.[29] This may indicate that couples or partners who may not disclose their status and do not trust each other and not living together due to social or economic factors may be exposed to the risk of exposure to HIV and other STIs.

Furthermore, low educational attainment was another predictor in this study. Participants who reported their partner only attained primary education were 86% less likely to use a condom than those whose partners attained secondary education and above. This is consistent with findings reported from Sub-Saharan Africa and Latin America in which condom use was higher among participants with a higher level of education.[30,31] This implies that a special education program is needed to reach those with low level of education.

Limitation and Strength of the Study

The data were solely dependent on self-reporting of sexual behavior; there may be social desirability bias which might have led to over-reporting of condom use. Furthermore, since the study used a cross-sectional design, it is difficult to establish a causal relationship. However, this study brings evidence from the youth of rural areas which is mostly neglected setting and this helps program managers, service providers, and other partners to implement best interventions accordingly.

Conclusion

Condom utilization was found to be low. Social and sexual related factors were the major predictors of condom use among the youth. Therefore, focused interventions need to be designed specifically to strengthen condom promotion campaigns through behavioral change communication.

Abbreviations

AOR, Adjusted Odds Ratio; CCM, Comitato Collaborazione Medica; COR, Crude Odds Ratio; HIV, Human Immune Deficiency Virus; IRB-THRI, Institutional Review Board of Tigray Health Research Institute; SPSS, Statistical Package For Social Science; STIs, Sexually Transmitted Infections.

Data Sharing Statement

The data set analyzed during the current study is available from the corresponding author on reasonable request.

Ethics Approval and Informed Consent

Ethical approval was secured from the Institutional Review Board of Tigray Health Research Institute (IRB-THRI) with a reference number of 0048/10. Written consent was obtained from the respondents aged 18 years and above after the provision of information about the objective of the study. For the study participants younger than 18 years old, guardians were written consented and assent was received from the study participants after a thorough explanation of the purpose of the study. Privacy and confidentiality was secured during interview. The participants were also informed about the voluntary participation and the right to decline from the study at any time. This study was conducted in accordance with the declaration of Helsinki.

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Author Contributions

All authors made a significant contribution to the conception, study design, execution, acquisition of data, analysis and interpretation of the data; took part in drafting and revising or reviewing the article critically; gave final approval of the version to be published; have agreed on the journal to which it would be submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests.

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