ADOLESCENT GIRLS' PARTICIPATION IN PEER-GROUP IMPROVED CONDOM USE AT SEXUAL DEBUT IN RURAL EASTERN ETHIOPIA: A COMMUNITY-BASED CROSS-SECTIONAL STUDY

Nebiyou Fasil[1], Alemayehu Worku[2], Lemessa Oljira[3], Amare Worku Tadesse[4,5], Yemane Berhane[6]

ABSTRACT

BACKGROUND: Adolescent girls engaged in sexual activity are unlikely to use condoms during their sexual debut. Younger adolescents are also not often targeted for sexual-related interventions because of the taboos associated with sexuality in traditional societies. This study examined the association between peer-group participation and condom use at sexual debut among young adolescent girls in rural Eastern Ethiopia.

DESIGN: The study used and analyzed data from end line survey of an implementation study involving 3,290 young adolescent girls aged 13-17 years. The intervention specifically targeted adolescent girls between the ages of 10 and 14 years who were part of a peer group. Unmarried sexually active adolescent girls and married adolescent girls who had their sexual debut before marriage were the study population. Multi-level mixed-effect logistic regression analysis was employed to examine associations using STATA/SE version 16 statistical software.

RESULTS: Among 3,290 adolescent girls surveyed, 258 (7.84%) reported engaging in sexual intercourse. The mean age (SD) age at sexual debut was 14.36 (+1.32), with no observed statistical difference between the intervention and control groups (p=0.1164). The magnitude of condom use at sexual debut was 22.46%, 95 % CI (14.11, 33.81%). Adolescent girls who participated in peer-groups had 11.51 (Adjusted OR: 11.51, 95% CI: 1.95, 67.84) higher odds of using condoms during sexual debut compared to those in the control group.

CONCLUSIONS: Peer group participation improved condom use at sexual debut. Peer groups can be critical for engaging adolescent girls in HIV and other sexually transmitted infection prevention and avoiding unwanted/ unplanned pregnancies. Further studies with larger sample size and specific design methodologies are imperative to gather robust evidence that support scale-up of this potentially lifesaving intervention.

KEYWORDS: Adolescent girls, condom use, peer-groups, premarital sex

(The Ethiopian Journal of Reproductive Health; 2024; 16;7-14)

1 Department of Global Health and Health Policy, Addis Continental Institute of Public Health, Addis Ababa, Ethiopia
2 School of Public Health, Addis Ababa University, Addis Ababa, Ethiopia
3 School of Public Health, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia
4 Department of Infectious Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, United Kingdom
5 Department of Nutrition and Behavioral Sciences, Addis Continental Institute of Public Health, Addis Ababa, Ethiopia
6 Department of Reproductive Health and Population and Department of Epidemiology and Biostatistics, Addis Continental Institute of Public Health, Addis Ababa, Ethiopia

INTRODUCTION

The adolescent population is prone to risky sexual behavior emanating from a lack of knowledge and inadequate access to healthcare[1] that make them vulnerable to sexually transmitted infections (STIs)[2,3], especially adolescent girls[4]. In addition, adolescent sexual activity can be more risky depending on the age at sexual debut[5]. In Ethiopia, adolescents who reported having sex before the age of 15 years ranged from 2.1% - 6.3%, while 34.5% of adolescents reported having sex before the age of 18. These figures are higher in the rural areas[6,7].

Early sexual debut, non-marital sex, and unprotected sex are risky behaviors that increase the risk of HIV infection[8–10]. Early sexual debut can also indicate situations where adolescents may have initiated sexual intercourse without protection[5]. Hence, promoting condom use is a critical preventive strategy against the risk of HIV[11–14]. In Eastern and Southern Africa, the regions most affected by HIV, only 19% of adolescent girls aged 15-19 have been tested for HIV in the past 12 months and received the last test result.[15] In Ethiopia, this figure is around 12.4% for girls and 8.9% for adolescent boys (6). In Ethiopia, condom use at sexual debut among school-aged youth ranged from 29.5% - 55.6%, while age at sexual debut ranged from 14-16 years[16–19].

Condom use among adolescents is determined by individual and societal factors[20]. Thus, interventions should prioritize specific values and beliefs that could lead to safe sexual practices in a particular context[21]. A systematic review of condom promotion programs among adolescents in low- and middle-income countries showed remarkable achievements in the uptake of condom use through communication and audience segmentation strategies[22]. Interventions tailored to condom application and intrapersonal skills have also been the hallmark of effective behavioral interventions in reducing HIV incidence[23]. This study aims to see whether participation in a peer-group can improve condom use at sexual debut among adolescent girls.

METHODS

Study design and participants

This study drew data from an end line survey conducted after the completion of implementation research project in the Western Hararghe Zone, Oromia Region, Ethiopia. The research implemented interventions to improve the sexual and reproductive health of adolescents. A peer group based intervention was implemented in three woredas (community areas) and another woreda served as a control. The peer group intervention involved organizing adolescent girls into girls' peer groups to discuss sexual and reproductive health issues, including family planning and condom use in the intervention arm. Details on the sampling procedure are available in a previously published article[24]. IFor this paper, a sub-sample of adolescent girls who reported engaging in sexual intercourse was taken for analysis.

Ethics and data protection

The research protocol was approved by the Institutional Review Board of Addis Continental Institute of Public Health (IRB registration/ identification No. 0029). Informed verbal consent was obtained from all study participants. For participants below the age of 15 years, additional parental/ guardian-informed verbal consent was obtained. All interviews took place in a private setting to ensure confidentiality. The data was de-identified when extracted from the larger dataset for this study.

Data collection tools, procedures, and data management

A structured and pretested interviewer-administered questionnaire designed in English and translated to the local language, Affaan Oromo, was used for data collection. The translation was checked by a panel of public health experts who were fluent in both languages. Interviewers and field supervisors were trained on survey procedures, study tools, and related issues for two weeks. Piloting was done in a

similar setting, not included in the main study, to test the appropriateness of the questions, language, flow, and understandability. Adolescent girls were interviewed at their residential compound in a private space. The Open Data Kit, an electronic data collection program, was used to collect the data. Data were uploaded on a secure server from the field whenever internet service was available.

Measures of condom use at sexual debut

For this study, reports from adolescent girls who reported engaging in sexual intercourse were taken for the analysis. Furthermore, to correctly identify condom use at sexual debut, only never married adolescent girls who reported having had sexual intercourse and ever-married adolescent girls who reported having had sexual intercourse before their marriage were included in the final analysis. For evaluating condom use at sexual debut, the question was "Did you/your partner use condoms during your first sexual intercourse?" The outcome variable had "Yes", "No" and "Don't know" response options. Those who said "Yes" were coded as "1" (used condom), "No" were coded as "0" (Didn't use condom), and "Don't know" were coded as missing. Finally, the outcome variable had "Used condom" and "Didn't use condom" response options.

Covariates

"Exposure"involved participating in peer groups organized by the parent implementation research; those who lived in the intervention woreda were taken as exposed, and those who lived in the control woreda were taken as non-exposed. Comprehensive HIV knowledge was operationally defined as correctly recalling three prevention methods of HIV transmission and rejecting two of the most common misconceptions of HIV[6]. Knowledge about condoms was operationally defined as answering correctly three condom knowledge questions. Condom use self-efficacy was operationally defined as being confident to refuse sex with that partner, ask about sexual history, discuss STIs, discuss condom use, and convince their partner to use condoms. Respondents with 3-5 positive ("yes") responses were coded as having self-efficacy; the remaining as not having self-efficacy[25]. Perceived confidence in negotiation skills was also defined as girls who responded to a single-item question about their level of confidence as "no/ little confidence", "moderate confidence" and "high confidence".

Other covariates considered in the analysis include adolescent girl's age, education (never attended school, grade 1-8, grade 9-12), marital status (ever married, never married), contact with health extension workers (yes, no) and age at sexual debut.

Statistical analysis

The data were analyzed using STATA/SE 16.0. The proportion of condom use at sexual debut was calculated as a percent with a 95% confidence interval. Cluster-ID was considered a random component. To examine associations, initially, a bivariate analysis was done, and then conceptually relevant covariates were included in the multivariable analysis. The intraclass correlation coefficient (ICC) was statistically significant; hence, multi-level mixed-effect logistic regression model was used. Associations were described using an odds ratio with 95% confidence intervals, and statistical significance was declared at $p<0.05$. Weighting was done to account for the complex survey design and analysis.

RESULTS

Of the 3,290 adolescent girls who participated in the parent study, 258 (7.84%) reported having had sexual intercourse. Most were ever-married (68.6%) and attended primary school education 75.58%. Among adolescent girls who reported having engaged in sexual intercourse, 145 (56.2%) were from the areas that participated in a peer group intervention, and 113 (43.8%) were from the areas that did not participate in the intervention. (Table 1)

Table 1: Background characteristics of adolescent girls who reported engaging in sexual intercourse, West Hararghe, Eastern Ethiopia, 2019 (n=258)

Characteristics	Frequency	Percent
Intervention group status		
Participated in Peer-group	145	56.2
Did not participate in Peer-group	113	43.8
Adolescent Girls' Age		
13	2	0.78
14	18	6.98
15	45	17.44
16	87	33.72
17	106	41.09
Adolescent Girls' educational status		
Never attended	51	19.77
Primary (1 – 8)	195	75.58
Secondary (9 – 12)	12	4.65
Adolescent Girls' marital status		
Never married	81	31.4
Ever married	177	68.6

Among adolescent girls who reported having had sexual intercourse, 81.62% had poor comprehensive knowledge of HIV, while 68.68% had poor knowledge about condoms. Half of adolescent girls who reported having had sexual intercourse had poor condom use self-efficacy, although 88.72% reported moderate to high confidence in their negotiation skills. (Table 2)

Table 2. Knowledge level and perceived skill characteristics of Adolescent girls reported engaging in sexual intercourse, West Hararghe, Eastern Ethiopia, 2019 (n=258)

Characteristics	Frequency	Percent(Weighted)
Comprehensive knowledge of HIV		
Good	48	18.38
Poor	210	81.62
Knowledge about condoms		
Good	82	31.32
Poor	176	68.68
Condom use self-efficacy		
Good	124	46.87
Poor	134	53.13
Ever had contact with Health extension workers		
Yes	65	27.43
No	193	72.57
Adolescent girls' perceived negotiation skill level		
Little/ No confidence	29	11.28
Moderate confidence	91	33.85
High confidence	138	54.87

Overall, the mean (+SD) age at sexual debut was 14.36 (+1.32). There was no statistical difference in mean age at sexual debut between the intervention and control groups (p=0.1164).

Condom use at sexual debut among adolescent girls

Condom use at sexual debut among adolescent girls was 22.46%, 95 % CI (14.11, 33.81%). There was a statistical difference in condom use at sexual debut between the intervention and control groups (p=0.018). The weighted mixed-effect logistic regression analysis showed that the odds of using condoms at sexual debut among adolescent girls participating in peer group was 11.51 times higher than those in the control group (Adjusted OR: 11.51, 95% CI: 1.95, 67.84). (Table 3)

Table 3: Multi-level mixed-effect Regression indicating factors associated with condom use at sexual debut among adolescent girls, West Hararghe, Eastern Ethiopia, 2019

Characteristics	Condom use at sexual debut		Unadjusted Bivariate (Weighted)		Adjusted Multivariable (Weighted)	
	Yes	No	COR (95% CI)	p-value	AOR (95% CI)	p-value
Adolescent girls' Participation in peer group						
Yes	18	32	9.75 (1.49, 63.59)	0.017	11.51 (1.95,67.84)	0.007
No	4	44	1		1	
Adolescent girls' comprehensive knowledge of HIV level						
Good knowledge	6	15	2,53 (0.45, 14.07)	0.289	1.95 (0.30, 12.59)	0.482
Poor knowledge	16	61	1		1	
Adolescent girls' knowledge of condoms						
Good knowledge	13	53	4.79 (1.02, 22.46)	0.047	4.47 (0.76, 26.31)	0.098
Poor knowledge	9	23	1		1	
Adolescent girls' self-efficacy for condom use						
Good	15	36	2.18 (0.49, 9.60)	0.303	1.00 (0.17, 5.71)	0.997
Poor	7	40	1		1	
Adolescent girls' contact with Health extension worker						
Yes	6	17	1.66 (0.17, 16.25)	0.662	1.05 (0.13, 8.49)	0.966
No	16	59	1		1	
Adolescent girls' perceived negotiation skills						
Little/ No confidence	4	35	1		1	
Moderate confidence	9	33	0.74 (0.11, 5.31)	0.771	0.33 (0.03, 3.62)	0.363
High confidence	9	8	0.71 (0.12, 4.22)	0.708	0.32 (0.04, 2.86)	0.309
Adolescent Girls' Age at sexual debut Mean(+SD)	14.09 (+1.23)	14.29 (+1.44)	0.98 *0.61, 1.58)	0.941	0.98 (0.001, 64.96)	0.941

DISCUSSION

This study showed that 7.84% of young adolescent girls reported having had sexual intercourse. The mean age at sexual debut was 14.36 years. Condom use at sexual debut among adolescent girls was 22.46%. Adolescent girls' participation in peer groups improved condom use at sexual debut.

Condom use at sexual debut was low compared to other studies conducted in Ethiopia[16–19]. The low condom use at sexual debut in the study could be explained by the relatively young adolescents involved in the study, the study area, which was rural, limited access to condoms, and the taboos related to condom use. Such observations are common in the studies conducted in areas where religious and cultural norms are strictly respected[26].

Peer-group participation was significantly associated with improved condom use at sexual debut. Emphasis given in the intervention on safe sexual practices could have helped adopt condom use at sexual debut. Previous studies indicated that it is easier to prevent problematic behaviors before initiated into the behaviors than alter

them once initiated and internalized[21]. Age and sex-appropriate interventions are instrumental in adopting healthy behaviors[27]. The study intervention was developed based on a formative assessment to develop appropriate messages for the peer groups. The study intervention seems promising to curtail the resurgence of HIV in Ethiopia. The intervention is feasible for implementation in Ethiopia and many similar settings as most adolescent girls are in school at an early age and organizing them into peer groups is not challenging. The materials used in the peer groups are could be adopted to a wider adolescent audience with little adaptation to specific socio-cultural settings.

No association was observed between HIV knowledge and condom use or knowledge about condoms and condom use. Some studies have indicated no direct association between HIV knowledge and sexual behaviors[28,29]. Moreover, a comparative study of socio-cognitive models for predicting condom use among adolescents also showed that the pathway, or association, or lack thereof, between knowledge about condoms and condom use was dependent on the type of model used[30]. Hence, using an appropriate socio-cognitive model is crucial. In addition, knowledge without the necessary skills to negotiate safer sex may not be sufficient to adopt health behaviors.

The study used data that was available from a relatively large number of adolescent girls. However, some limitations are noted. The sample sub-population available for this study was not sufficient, as can be observed from the wide confidence interval. As the parent study was not designed to specifically answer our study objective, some critical information related to condom use was not available. We were also not able to document the detailed implementation of the intervention as that was not part of the dataset available for analysis. Thus, the strong association observed in this study between condom use during sexual debut and the intervention could be due to uncontrolled confounding. Reporting and social desirability biases could also be the reason for the observed association. While reporting condom use can be underestimated due to cultural taboos, especially for adolescent girls, the social desirability bias could overestimate condom use particularly, among peer group participants. The generalizability of the study is also limited by the fact that it was conducted in one zone and only in rural areas.

CONCLUSION

Condom use at sexual debut was low. Participation in peer groups improved condom use at sexual debut. Further studies with larger sample size and specifically designed research are necessary to generate evidence for scale-up of this potentially lifesaving intervention.

DECELERATIONS

Availability of data and materials

All data relevant to the study are included in the manuscript.

Conflict of interest

All authors declare no conflict of interest

Authors contributions

N.F., Y.B., and A.W. were responsible for conceptualizing, reviewing, and editing the manuscript. N.F., A.W., and A.W.T were responsible for data cleaning. N.F. was responsible for formal analyses and writing the original draft. L.O. and A.W.T. contributed and critically revised the manuscript. All authors have read and given their approval for the publication.

Acknowledgements

The authors would like to acknowledge the Abdiboru project for providing the data for this paper.

CORRESPONDING AUTHOR:

Nebiyou Fasil
Addis Continental Institute of Public Health
Email: nebiyoufasil@addiscontinental.edu.et

REFERENCES

1. Pharr JR, Enejoh V, Mavegam BO, Olutola A, Karick H, Ezeanolue EE. A Cross-Sectional Study of the Role of HIV/AIDS Knowledge in Risky Sexual Behaviors of Adolescents in Nigeria. Int J High Risk Behav Addict. 2017 Dec;6(4).
2. Afriyie J, Essilfie ME. Association between risky sexual behaviour and HIV risk perception among in-school adolescents in a municipality in Ghana. Ghana Med J. 2019;53(1):29–36.
3. Obarisiagbon OE, Ofili AN, Isara AR, Ighedosa SU. Knowledge, Attitude, Practices and associated factors of HIV/AIDS among adolescents in Ora Community, Edo State. Ann Health Res. 2019;5(1):51–64.
4. Mabaso M, Maseko G, Sewpaul R, Naidoo I, Jooste S, Takatshana S, et al. Trends and correlates of HIV prevalence among adolescents in South Africa: evidence from the 2008, 2012 and 2017 South African National HIV Prevalence, Incidence and Behaviour surveys. AIDS Res Ther. 2021 Dec 14;18(1):97.
5. Tavares CM, Schor N, França Junior I, Diniz SG. Factors associated with sexual initiation and condom use among adolescents on Santiago Island, Cape Verde, West Africa. Cad Saúde Pública. 2009 Sep;25(9):1969–80.
6. Central Statistical Agency (CSA) [Ethiopia], ICF. Ethiopia Demographic and Health Survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF; 2017 Jul.
7. Ethiopian Public Health Institute (EPHI. Ethiopia Population-based HIV Impact Assessment (EPHIA) 2017-2018. Addis Ababa, Ethiopia: EPHI; 2020 Aug.
8. Limaye RJ, Babalola S, Kennedy CE, Kerrigan DL. Descriptive and injunctive norms related to concurrent sexual partnerships in Malawi: implications for HIV prevention research and programming. Health Educ Res. 2013 Aug 1;28(4):563–73.
9. Srahbzu M, Tirfeneh E. Risky Sexual Behavior and Associated Factors among Adolescents Aged 15-19 Years at Governmental High Schools in Aksum Town, Tigray, Ethiopia, 2019: An Institution-Based, Cross-Sectional Study. BioMed Res Int. 2020;2020:3719845.
10. Daka D, Shaweno D. Magnitude of risky sexual behavior among high school adolescents in Ethiopia: A cross-sectional study. J Public Health Epidemiol. 2014 Jul 31;6:211–5.
11. Levy E, Gidron Y, Olley BO. A new measurement of an indirect measure of condom use and its relationships with barriers. SAHARA J J Soc Asp HIVAIDS Res Alliance. 2017 Sep 13;14(1):24–30.
12. Jain A, Tobey E, Ismail H, Erulkar A. Condom use at last sex by young men in Ethiopia: the effect of descriptive and injunctive norms. 2018;
13. Gebreselassie G, Deyessa N, Tesfaye G. Intention to use condom among students in Agena preparatory school, Guraghe Zone, Ethiopia: with the application of health believe model. Arch Public Health Arch Belg Sante Publique. 2013;71(1):23.
14. Kassie GM, Mariam DH, Tsui AO. Patterns of knowledge and condom use among population groups: results from the 2005 Ethiopian behavioral surveillance surveys on HIV. BMC Public Health. 2008 Dec 31;8:429.
15. United Nations Children's Fund. Adolescent HIV prevention: Turning the tide against AIDS will require more concentrated focus on adolescents and young people [Internet]. UNICEF DATA. 2019 [cited 2019 Nov 5]. Available from: https://data.unicef.org/topic/hivaids/adolescents-young-people/
16. Bizu D, Aderaw Z, Kassa GM. Assessment of Early Sexual Initiation and Associated Factors among Preparatory School Students of FaggetaLekoma District, Awi Zone, Northwest Ethiopia, 2015. Int J Clin Med. 2015 Aug 6;6(8):521–9.
17. Woldeamanue BT. Risky sexual behavior and associated factors among high school adolescents in North Shewa zone, Oromia Region, Ethiopia. PAMJ - One Health [Internet]. 2020 Jul 28 [cited 2023 Apr 23];2(18). Available from: https://www.one-health.panafrican-med-journal.com/content/article/2/18/full
18. Emebet T, Shaweno D, Daka D. Prevalence, associated risk factors and consequences of premarital sex among female students in Aletawondo High School, Sidama Zone, Ethiopia. J Public Health Epidemiol. 2014 Jul 31;6:216–22.
19. Girmay A, 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 Oct 26;12(1):698.
20. Abera H, Tamiru F, Kibret GD. Intention toward condom use and its associated factors among students of Debre Work Senior Secondary and Preparatory School, East Gojjam Zone, Amhara Region, Ethiopia. HIVAIDS Auckl NZ. 2017 Jun 19;9:137–43.
21. Ritchwood TD, Penn D, Peasant C, Albritton T, Corbie-Smith G. Condom Use Self-Efficacy Among Younger Rural Adolescents: The Influence of Parent-Teen Communication, and Knowledge of and Attitudes Toward Condoms. J Early Adolesc. 2017 Feb 1;37(2):267–83.
22. Evans WD, Ulasevich A, Hatheway M, Deperthes B. Systematic Review of Peer-Reviewed Literature on Global Condom Promotion Programs. Int J Environ Res Public Health. 2020 Apr;17(7):2262.

23. Covey J, Rosenthal-Stott HES, Howell SJ. A synthesis of meta-analytic evidence of behavioral interventions to reduce HIV/STIs. J Behav Med. 2016 Jun;39(3):371–85.
24. Fasil N, Worku A, Oljira L, Tadesse AW, Berhane Y. Association between sexual and reproductive health education in peer group and comprehensive knowledge of HIV among adolescent girls in rural eastern Ethiopia: a community-based cross-sectional study. BMJ Open. 2022 Oct 1;12(10):e063292.
25. Meekers D, Klein M. Determinants of Condom Use among Unmarried Youth in Yaoundé and Douala, Cameroon [Internet]. Cameroon: PSI; 2001 [cited 2019 Aug 28] p. 24. Report No.: 47. Available from: https://www.psi.org › drupal › sites › default › files › publication_files
26. Vigliotti V, Taggart T, Walker M, Kusmastuti S, Ransome Y. Religion, faith, and spirituality influences on HIV prevention activities: A scoping review. PloS One. 2020;15(6):e0234720.
27. FDRE Ministry of Health. National Adolescent and Youth Health Strategy (2016 - 2020) [Internet]. 2016. Available from: https://www.prb.org/wp-content/uploads/2018/05/National-Adolescent-and-Youth-Health-Strategy-2016-2020.Ethiopia.pdf
28. Guiella G, Madise NJ. HIV/AIDS and Sexual-Risk Behaviors among Adolescents: Factors influencing the use of condoms in Burkina Faso. Afr J Reprod Health. 2007;11(3):182–96.
29. Nubed CK, Akoachere JFTK. Knowledge, attitudes and practices regarding HIV/AIDS among senior secondary school students in Fako Division, South West Region, Cameroon. BMC Public Health [Internet]. 2016 Aug 22 [cited 2020 Feb 11];16(1). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4994230/
30. Espada JP, Morales A, Guillén-Riquelme A, Ballester R, Orgilés M. Predicting condom use in adolescents: a test of three socio-cognitive models using a structural equation modeling approach. BMC Public Health. 2016 Jan 14;16:35.