Contraceptive use among sexually active female adolescent: Trends and determinants insight from National Demographic and health survey

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Abstract

Background Background: Sexual and reproductive health of young people is a global priority. Access to sexual and reproductive health information and services determine the burden of adolescent and unwanted pregnancies. Teenage pregnancy that has profound effects on the health and wellbeing of young women across their life course is a burning public health and a demographic challenge in Ethiopia. Contraceptive use allows girls to postpone motherhood and space births. However, little is known about the trends in contraceptive use and its determinant among girls aged 15 to 19 in Ethiopia. Therefore, this study was designed to examine the trends and correlates of contraceptive use among sexually active adolescents in Ethiopia by using Ethiopian demographic and health survey data. **Methods** : Four Ethiopian demographic and health survey data were used to examine trends of contraceptive methods use among sexually active adolescent girls. To identify factors associated with contraceptive use, the 2016 Ethiopian demographic and health survey data were used. The data was accessed from the demographic and health survey program data base and data for sexually active adolescent girls were extracted. Data analysis was done using SPSS version 21. Data were weighted for analysis. Descriptive analysis was used to describe independent variables of the study. Multivariable logistic regression model was used to identify factors associated with contraceptive use. **Results:** The analysis of Ethiopian demographic and health survey data indicated that Contraceptive method use were increased significantly from 6.9% in 2000 to 39.6% in 2016. The odds of contraceptive use were lower among female adolescent who had no formal education (AOR: .044; 95%CI: (.008 to 0.231), primary education (AOR:.101; 95%CI: 0.024 to 0.414). But the odds of contraceptive methods use were higher among adolescents of good life standard (rich) (AOR: 3.662; 95%CI: (1.353 to 9.913), and those who were told about family planning during their health facility visit (AOR: 3.115; 95%CI: 1.385 to 7.007) **Conclusion:** Contraceptive method use were increased significantly among sexually active adolescent girls in Ethiopia in the year 2000 to 2016. Wealth index, education and information about family planning during their health facility visit were factors associated with contraceptive use. Improving economic and educational status of young women may help in improving contraceptive use in Ethiopia.

Introduction

Adolescents: Individuals in the age range of 15- 19 years are central to sustainable development. This age group contributes up to 16 percent of the world's population and is one of the fastest growing cohort (1–3). Adolescence is a critical phase in life for achieving human potential and a time of social and biological transition between childhood and adulthood that entails numerous milestones and opportunities, roles, and responsibilities (4–6)

Although adolescent populations are huge in number and their contribution is important in achieving several developmental goals, an explicit attention has not given to adolescent during millennium development goals (5). However recently, global developmental goals and strategies recognized adolescents as a previously neglected population group and emphasized the importance of their health and rights(7,8). The 2016 lancet commission report on adolescent also indicated the triple dividend of

investing on adolescent (6). Investments done for adolescent supported them to become healthy adults who are equipped to contribute positive to societies (9).

The sexual and reproductive health and right of young people is a global priority as the reproductive choices made by them have a massive impact on their health and wellbeing, education and economy (10,11). In addition, children born to adolescent girls are more likely to have low birth weight (12). Among girls in developing regions, about half of all pregnancies are unintended. More than half of these pregnancies result in abortion whereas 14% were unsafe abortions (10). In addition, every year, an estimated 3.9 million unsafe abortions occur among girls under the age of 20 years worldwide (13). These early and unintended pregnancies have major health consequences for both mothers and their babies; pregnancy and childbirth complications are the leading cause of death among adolescent girls globally, with higher proportion in low- and middle-income countries (14,15)

Access to sexual and reproductive health information and services including high-quality contraceptive methods services are essential in averting the burden of early pregnancies, unintended pregnancies and births and abortion (4,6,11,16). The use of contraceptive method is a most effective way for sexually active adolescent to prevent pregnancy and its related complication (10). For instance, use of modern contraceptives prevents an estimated 308 million unplanned pregnancies in 2017(11), and if all adolescent with an unmet need for modern contraception were to receive the services, unintended pregnancies would drop by 59% from current levels(10). In addition, evidence from developing countries indicated the relationship between improving access to contraceptives and unsafe abortion, and expanding contraceptive method mix can serve as an effective strategy to prevent unsafe abortion (17). Hence, all adolescents who want to prevent pregnancy should able to obtain and use contraception (18).

Available evidences suggest that sexually active unmarried adolescents are not seeking to become pregnant and married wish not to become pregnant at a young age or wish to delay a second pregnancy(11,14,19,20). However, there is high unmet need for modern contraceptive use among adolescent. For instance, to avoid an unintended pregnancy, 38 million adolescents in developing countries need contraceptives however only 40% are using an effective contraceptive method (10)(21). Despite having clear needs, adolescents and young adults often fail to access sexual and reproductive health care and unplanned pregnancies happen despite the best of contraceptive intentions (5,6,22)

In Ethiopia teenage pregnancy is a burning public health issue, and a demographic challenge. The proportion varies geographical with 15% in rural and 5% in urban(22). Preventing teenage pregnancies and fertility is among the priority issues of the Ethiopian Federal Ministry of Health(23). The government of Ethiopia has implementing policies and strategies to support young people (24–26). Although efforts are made to eliminate inequalities in the utilization of sexual and reproductive health services across the globe, there are disparities in contraceptive use between different age groups and young people have inadequate access to sexual and reproductive health information and services.

Despite studies are available on contraceptive use in Ethiopia, there is no comprehensive study using countrywide data to assess the trends in contraceptive use and its correlates among girls aged 15 to 19

years. To effectively respond to the reproductive health needs of these growing youth population, it is imperative to understand their contraception practices. Therefore, the purpose of this study was to examine the trends and correlates of contraceptive use among sexually active adolescents in Ethiopia by using Ethiopian demographic and health survey data. Understanding the contraceptive status of such a large part of the population can generate comprehensive and meaningful evidences. These kinds of comprehensive evidences will be useful to planners for health programming of the country and all other stakeholders who are working to improve the health and wellbeing of adolescents in Ethiopia. Furthermore, it will assist in designing strategies and programs to better address coverage, quality, and equity issues at the country level as this paper sought to examine the trends of contraceptive using four Ethiopian DHS.

Data And Method

Data for this study are from the four consecutive years' (2000, 2005, 2011 and 2016) Ethiopian Demographic and Health Surveys [EDHS]. The information about contraceptive use was collected from all non-pregnant, fecund reproductive age women using pretested questionnaire. Detail about the methodology could be accessed from (www.measuredhs.com). In this study, all the four EDHS data were used to describe the trend of contraceptive use among sexually active female adolescent. The 2016 EDHS data are employed to analyze the determinants of contraceptive use by background characteristics.

The 2016 survey comprising 15,683 women aged 15– 49 and 12,688 men aged 15– 59. Among total interviewed women, 6401 of them were youth; 15-19 girls account 3498(22.3%) while 20-24 age groups were 2903(18.5%). Data for sexually active adolescent girls were extracted from the data set. Of the total adolescent girls participated in the study, 518 them were sexually active in the last four weeks before data collection. The data set was requested from the Measure DHS program on April 1, 2019. An approval was then granted to download the data.

The dependent variable for this study was contraceptive use. Some of the selected independent variables include: Age, educational status, religion, ethnicity, marital status, working currently, wealth status, visiting of health facility, hearing about family planning information from radio, TV, newspaper, place of residence and region of residence, told about family planning at the health facility.

For this study some of study variables were re-coded to suit the purpose of the study while some were used as they are in the original data set. For instance, religious affiliation was re-coded into orthodox Christian, other Christian and Muslim. Wealth status was also recoded into poor, average and rich by combining “poorer” and “poor” for poor and “rich” and “richer” for rich. Highest educational level status was recoded into no education, primary, and second and above by combining secondary and higher.

The data were analyzed using SPSS version 21. Before any statistical analysis, standard EDHS sample weight was applied to account for the unequal probability of selection in the sample and non-response. The recommended procedure on how to weight DHS data in SPSS was followed. The weighting variables

used was women's individual sample weight since the study unit of analysis is women. Descriptive analysis was used to describe background characteristics of the study participants. Multicollinearity was checked before running logistic regression using variance inflation factor. The maximum value of variance inflation factor was 1.119, indicating that the absence of multicollinearity. Binary and multiple logistic regressions were employed to identify candidate variable and examine the determinants of sexually active adolescent contraceptive use respectively. Adjusted odds ratios with 95% confidence interval were presented for significant variables in the model in order to estimate the likelihood of contraceptive use among the various categories of female adolescents. All figures and tables in the report depict weighted numbers and percentages.

Operational definition of terms

Adolescent: Individuals whose age is between 15 and 19

Sexually active: Those respondents who reported that they have had sexual intercourse, irrespective of their marital status in the last four weeks at the time of interview.

Contraceptive use: Respondents who at the time of interview said they or their partner are using any contraceptive method to delay or avoid becoming pregnant. It was dichotomous denoting users and nonusers of contraceptive methods.

Current use of modern contraception: Current users of modern contraceptives include young women who said that they or their partner are currently using any of the following modern methods of contraception such as female sterilization, male sterilization, pill, injectable, intrauterine device, implant, condom, and emergency contraception at the time of survey.

Results

Socio demographic characteristics of the adolescents

This section describes the distribution of sexually active adolescent girls (N=504) by their selected background characteristics by using 2016 EDHS data set. The mean age of the respondents was 17.73(± 1.124). The mean ages at first cohabitation and first sexual intercourse were 15.59 (± 1.734) and 15.63 (± 1.751) years respectively. Among sexually active adolescents included in the study, about half, 225 (47.3%) of them cohabited at age 15 years and less than.

As it is displayed in table 1, three fifth (60.6%) of the sexually active adolescent girls have attended their primary education, and most of them, 87.3% (440) were from rural residents; while almost nine in ten [91.0%] of them were married, and likewise 125(24.8%) of them were from poorer socioeconomic group. About 211(41.9%) of them were Muslim by religion and 199 (39.5%) were Oromo by Ethnicity. More than three fourth (79.7%) of girls were not working at the time of the survey (**Table 1**)

Exposure to family planning information, knowledge about fertility and contraceptive method

Among sexually active adolescent girls, only 18.1, 13.4 and 4.2 percent of them reported that they had heard family planning messages on radio, watched on TV and read on newspaper/magazine respectively in the last few months before the survey. Family planning related text message on mobile had been received only by 1.1% girls in the last few months. More than three fourth (79.9%) girls reported that they were not visited by health workers in the last 12 months before the survey. Out of those who were visited by fieldworker, only 9.9% of fieldworker talked about family planning. In addition, among 211(42%) those visited health facility in the last 12months, only 77(15.3%) were told about family planning.

The 2016 EDHS survey indicated that sexually active adolescent girls in Ethiopia had limited knowledge about fertile period. Only 15% correctly knew the ovulatory period and 18.8% do not knew a time when women can get pregnant. Almost all, 494(98%) of the sexually active adolescent girls knew about contraceptive methods. Regarding decision making about contraceptive use, in the majority, 133 (78.4 %) of the cases decision on contraceptive was made jointly by respondent and husband (**Table2**)

Trends in contraceptive use

Figure 1 below shows the percentage of sexually active adolescent girl are currently using any methods of contraception from 2000 to 2016. As shown in the figure the trend of contraceptive use among sexually active female adolescents increased from 6.9 percent in 2000 to 39.6 percent in 2016, more than a 6-fold increases. Regarding to the types of contraceptives used, the proportion of modern contraceptive method use has significantly increased and only small proportion of sexually active adolescent use traditional methods of contraception. The proportion of users of modern method has increased by 8.7 percent during the survey period from 2000 to 2005. The use of modern contraceptive methods nearly doubled between 2005 and 2011. The proportion of adolescent who have used modern contraception methods continuously increased between the years 2005 and 2016 and, more than 10 percent increment was observed between 2011 and 2016 (Figure 1)

Differentials in contraceptive use by background characteristics

Figure 2 of the survey shows the differentials in the proportion of contraceptive use among sexually active adolescent girls by selected background characteristics. The proportion of any method of contraceptive use varies significantly with age, place of residence, educational level of respondent and household wealth status.

In all of the four surveys, modern contraceptive use was more common among adolescents with secondary and above educational status, from urban areas, in the age category of 18-19 and who have rich family. The percent of girls with secondary and above educational level and using a method has no change between 2005 and 2011 and significantly declined by 6.3 percent between 2011 and 2016. The

lowest proportions of modern contraceptive users are among adolescent girls from poor household (24.3%) and adolescent in the age category of 15-17(25.9%) according to 2016 survey year (Figure 2).

Modern contraceptive trend by method mix

Figure 3 shows the trend in different types of contraceptive among users of modern method of contraception between 2000 and 2016 survey year of Ethiopian DHS. There is a slight change in the pattern of use of contraception over time. The trends in mix of currently used modern methods indicated promising improvement. The share of long acting reversible contraceptive method such as Norplant/implants among sexually active adolescent girls has significantly increased by more than 6 percentage between 2000 and 2016 while the increase was more than three times between 2011 and 2016. Regarding the observed shifts in the prevalence of short-term methods, the share of injection methods of contraception has significantly increased by more than 25 percent from the year 2000 to 2016. Though using condom has dual benefit as contraceptive method and prevention of STI/HIVS, it uses as contraceptive means significantly declined between the years 2005 and 2016 from 1.7% to 0.1%.

Factors associated with contraceptive use among sexually active adolescents

In bivariable logistic regression eleven variables had significant relationship with female adolescent contraceptive use. These include respondent and partner educational and occupational status, currently working status, wealth status, visited by field worker in the last 12 months, told about Family planning at a health facility, place of residence, heard family planning messages on radio on the last few months, and heard family planning messages on TV on last few months. However, in the multivariable logistic regression there is no significant relationship between adolescent contraceptive use and type of place of residence, respondent occupation, heard family planning message on radio on last few months, heard family planning messages on TV on last few months and visit of health facility.

The odds of contraceptive use were nearly 96% (AOR: .044; 95%CI: (.008 to 0.231) and 90% (AOR: .101; 95%CI: 0.024 to 0.414) less likely among sexually active female adolescent who had no education and primary education respectively compared to their counterparts who had attended secondary and above educational level. Adolescent living in rich wealth status were higher than three times more likely to use contraceptive as compared to adolescents in poor wealth status (AOR: 3.662; 95%CI: (1.353 to 9.913). The odds were three times among respondents who had visited health facility and told about family planning compared to their counterparts who had not told about FP during their visit (AOR: 3.115; 95%CI: 1.385 to 7.007) (Table 3)

Discussion

This study examined the trend and correlates of contraceptive use among sexually active female adolescents in Ethiopia using national demographic and health survey.

Finding from this study indicated that more than nine in ten of adolescents were married. About half, 225 (47.3%) of were cohabited at age 15 years and less than which is more than three years earlier compared to the recommended age at marriage in Ethiopia. This finding was showing the practice of very early marriage and early sexual activities among adolescent girls. These types of sexual practices have a direct impact on their education and future carrier particularly subsequent to childbirth (27).

Early marriage often results from the traditional and cultural family values that justifies control over women's sexuality and fertility(28–30). Due to increased fertility and population growth as a result of the extended time that the girls spend in childbearing years, early marriage has a negative consequence on the economic development of nations in addition to causing a significant health risk to both the girl and her baby(31). Evidence indicated that in marriage union the frequency of sexual activity is higher than in those who are not, hence in the absence of contraception there is the greater likelihood of occurrence of pregnancy(28).

According to the finding from this study, the rates of use of contraception by adolescents are increasing from time to time over the last decade in Ethiopia. Improvements in contraceptive prevalence trends were more pronounced between 2005 and 2011 survey years. Possible explanations for this increment in contraceptive prevalence may be related to implementation of several interventions aimed at increasing demand for and access to sexual and reproductive health services among adolescents and youths by providing youth-friendly health services and innovative health extension worker program that brings health services including family planning to the communities home(20,32)

There is also a national political commitment to family planning in Ethiopia, by governments and non-governmental organizations has increased resource allocations for contraceptive security and deliver(33). The private sector also played an important role in increasing young women's access to contraceptive services in Ethiopia (34).

The present study revealed that the Knowledge of contraceptives was almost universal. However, with this intense knowledge there exists a huge gap between the knowledge and practice of contraceptive methods. The possible explanation for this gap was seen in our context where husband is the household decision makers in most of the cases; hence it may be difficult for adolescent girls to decide by themselves on using or non-using of contraception even though they have the knowledge about the contraception. This is because the adolescent is not matured enough to planned their fertility intension. Also fear of side effect and disapproval from husband may be the reason for not using contraception.

According to this study, there is visible change in trend of contraceptive use, yet, more than three fifth of the sexually active female adolescents are still not using the contraceptive according 2016 EDHS report. This finding was slight lower than the report on patterns and trends in adolescents' contraceptive use in developing countries where 42–68% of sexually active adolescent females in all the Latin American countries (except Guatemala and Haiti) and in Bangladesh, Indonesia, Kazakhstan and Turkey were currently using contraceptives. However, it is higher than the results among the African countries where contraceptive prevalence was 20–35% except in Namibia in which it reached at least 40% (35).

Also, this finding was slightly higher than the study from Zimbabwe and Malawi where 35% and 33% of adolescents use contraceptive respectively (36). Further, it was higher compared to figures from Nepal. In Nepal only 23.1% of married women age 15-19 are currently uses any method of contraception, (14.5% modern contraceptive use and 8.6% traditional method (37). The association between poor contraceptive use and teenage pregnancy is supported by studies and nonuse of contraceptive could put adolescent in risks for teenage pregnancy, unintended birth, adverse birth and health outcome. (36,38,39). Hence, ensuring access and choice to family planning to improve maternal and neonatal health is crucial.

The proportion of sexually active female adolescent contraceptive users relying on the IUD and implants increased substantially from no reported users in 2000 to 1.1% and 6.3% respectively in 2016. The share of injection methods of contraceptive rose from 1.6% to 29.1%, while the patterns observed in condoms and pill as the method of contraception declined from 1.1% to 0.1% and 3.2% to 1.8% respectively. This finding indicated that adolescent girls appear to be shifting away from condoms and pills and choosing for injectable contraceptives.

This finding is comparable with evidence from Kenya and Rwanda showed that injectable contraceptives have been consistently dominant method among women aged 15-24 years(40). Possible reason for this could be due to the age of the participants, being young. The fertility intension for these young population is to delay or space births for two or more years which might explain their preference for short acting methods that are easier to start and stop as needed(35). However, evidence from developing country indicate that, in Sub-Saharan Africa the low use of condoms and the increasing dominance of injectables have challenges for family planning efforts and may have significant programmatic and public health implications(41).

Despite the progress that has been achieved, a substantial number of sexually active adolescent girl uses short acting methods especially injectable method which have high failure rate compared to long acting and reversible contraceptive methods. Low uptake of long acting and reversible contraceptive method may be due to barriers such as lack of availability, fear and misconceptions and providers bias on provision of long acting methods for adolescents(42).

There were significant variations in the use of contraception by demographic and socioeconomic characteristics of adolescent girls in Ethiopia. According to this study, there is significant inequality among sexually active adolescent regarding contraception use by their education, partner's occupation, wealth status and access to information about family planning at health facility. Adolescents who have secondary and higher educational level, who had information about family planning at health facility, and adolescent from are in the highest wealthy families use significantly more contraception as compared to their counterpart who have not attended formal education, did not have information about family planning at the health facility, or who belong to the poor families.

This study revealed that respondent education was an independent predictor for contraceptive use among sexually active female adolescent. This finding was similar with a study from Nigeria and Burkina Faso that stated prevalence of contraceptive use among adolescents with a secondary-level education or

above was 5.9 and 2.4 times higher in Nigeria and Burkina Faso respectively than those who had completed only primary-level education(43). Similarly, the study conducted in Ghana identified education as a determinant for contraceptive use, the odds of contraceptive use were 7.39 and 11.53 times among female adolescents who had primary and secondary or higher education respectively compared to their counterparts who had no formal education (44). Educational status was also a significant predictor of contraceptive use in Bangladesh- low contraceptive use among illiterate female adolescents was reported (45). This may be due to the fact that educated women are more likely to appreciate the returns/dividend that contraceptives use has on their lives. Also educated women may have a plan to pursue highest career with in their education as a result they want to delay their childbearing time.

The likelihood of contraceptive use among the female adolescents increased significantly with the increase in their household economic status. As a result, female adolescents in the household with highest wealth index were more likely to use contraceptives than their poor counterparts. This finding was in line with DHS analysis from three African countries: Nigeria, Burkina Faso and Ethiopia, across all three countries, there is a significant equity gap in modern contraception use because of wealth index (43). Similarly, the analysis conducted using the 2016 Ethiopian demographic and health survey to identify factors associated with long acting and permanent contraceptive methods use showed that women in the richer wealth index were more likely use long acting and permanent contraceptive methods compared to those in poor wealth index(46). This may be for the reason that most of the small resources obtained from the petty jobs done by women and their spouses in poor households are diverted to take care of the family and less is shifted to the health of the mothers themselves. As a result, poor household preferred not to use the service as they encountered difficulties to cover direct and indirect costs incurred in seeking the services(47)

Further, those had been told about family planning during health facility visit was a significant predictor for contraceptive use. Contraceptive use among respondents who had told about family planning information was 3.7 times compared to their counterparts who had not told about family planning information at the health facility. The existing body of literature considered in parallel with our findings strongly indicated that, female adolescent access to family planning information via different sources increases their use of modern contraceptive methods. For instance, study from Nigeria found that hearing about family planning on mass media was associated with the use of modern contraceptives (48). In addition, in Bangladesh it was highlighted that being frequently visited by family planning worker resulted in responding positively to their use of contraception(20).

Access to information play a significant role in the use of contraception as it has the capacity to raise an individual's awareness, and influence their attitude and could guide adolescents to make an informed decision to use the services. However, in the present study only 15% of those who visit health facilities are told about contraception that indicated many sexually active adolescent girls miss out on this information. A systematic review that conducted in 2011 and updated in 2016 on youth-friendly family planning services for young people indicated the importance young people place on receiving comprehensive, client centered family planning counseling(32). However, there are a number of factors

that identified as barriers to the delivery of effective contraceptive counselling and care for adolescents at these different levels. For instance, in Latin America, many consider adolescent use of contraception to be socially unacceptable (49).

Since there were significant associations between FP counseling with contraceptive initiation as well as and continuation, health care provider skills in the counselling and provision of contraception services for adolescent are therefore need be emphasized (50)

Our study has some limitations, the small sample sizes that contributed to a bit wide confidence level for some variables. Possibility of social desirability bias that may resulted to underreporting of sexual activity. Since the information was self-reported it may not indicate the true picture of contraceptive practice by adolescent. The data is from a cross-sectional survey and unable to establish any causal relationship between our outcome of interest (contraceptive use) and the covariates of interest.

Conclusion And Recommendation

A considerable proportion of adolescents are experienced early marriage that remains major bottleneck for adolescents. There is an increment in trend of modern contraceptive use among sexually active female adolescents during the 2000 to 2016 EDHS and nearly doubled between 2005 and 2011. Almost all of the girls know about modern contraceptives, but this high knowledge did not translate into practice and only three fifth uses it. Injectable was the most widely used contraceptive method. Respondent education, wealth status and had been told information about family planning at health facility were significant determinants for contraceptive use. Personal, social and institutional factors determine the contraceptive practices among adolescent and may have consequences for subsequent reproductive behaviors

As adolescent populations continue to grow, governments must develop more targeted strategies for improving socioeconomic and adolescents' education. This will not only increase contraceptive prevalence among sexually active female adolescents in Ethiopia but will also reduce teenage pregnancy and child bearing, and in turn contribute to the achievement of the Sustainable Development Goal 3 of good health and wellbeing. Improving contraception use among sexually active adolescents will require connecting adolescents with information and services during their routine health services visits and taking advantage on missed opportunities for contact with the health facility. strengthen health workers competency and attitude on counselling and provision of contraceptive information and services for adolescents is also crucial. Considering the fact that contraceptive knowledge does not necessarily translate into usable, qualitative studies, are needed to understand why high knowledge levels are not associated with high usage patterns. This will support policy makers understand the various factors which influence the practice of family in designing effective family planning programs. Strengthening community and school-based programs to address the school environment and/or community attitudes toward early marriage is important. than are strategies.

Abbreviations

AOR: Adjusted odd Ratio, COR: Crude odd Ratio, DHS: Demographic and Health Surveys, EAs: Enumeration areas, EDHS: Ethiopian Demographic and Health Surveys , HIV/AIDS: Human immunodeficiency virus infection and acquired immune deficiency syndrome , IUCD: Intra-Uterine Contraceptive Device, SPSS: Statistical Package for the Social Sciences, STIs: Sexual transmitted infections , TV: Television

Declarations

Ethics approval and consent to participate: Manuscript has adhered to the ethical standards. The data set was requested from the Measure DHS program. An approval was then granted to download the data.

Consent for publication: Not applicable

Availability of data and materials: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request

Competing interests: The authors do not have any conflicting interests to declare.

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Availability of data and materials: The raw data available at <https://dhsprogram.com/publications/publication-fr328-dhs-final-reports.cfm>

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Tables

Table 1 : Distribution of sexually active female adolescents age 15-19 by their background characteristics, Ethiopia DHS 2016

Variable		Frequency	Percent
Age category	15-17	161	32.0
	18-19	342	68.0
Education of respondent	No education	143	28.4
	Primary	305	60.6
	Secondary and above	56	11.0
Place of residence	Urban	64	12.7
	Rural	440	87.3
Marital status	Married	458	91.0
	Never married	23	4.5
	Divorced/separated	23	4.5
Wealth index	Poor	230	45.6
	Average	97	19.3
	Rich	177	35.1
Religion	Muslim	211	41.9
	Orthodox Christian	201	39.9
	Other Christian	90	17.9
	Other	2	0.3
Ethnicity	Oromo	199	39.5
	Amhara	155	30.7
	Tigraie	34	6.8
	Sidama	22	4.4
	Somalie	17	3.3
	Walaita	12	2.4
	Gamo	10	1.9
	Guragie	8	1.5
	Other	48	9.4
Respondent occupation	Not working	300	59.6
	Agriculture	102	20.3
	Sales	57	11.3
	Others*	45	8.8
Currently working	No	402	79.7
	Yes	102	20.3
Husband Occupation(N=458)	Not working	35	7.6
	Agriculture	301	65.8
	sales	33	7.2
	Professional/technician	16	3.4
	Others ⁺	74	16.1
Husband Education(N=458)	No education	147	32
	Primary	220	48.1
	Secondary and above	91	19.9

*professional/managerial/technical, services, skilled and unskilled manual

⁺ skilled and unskilled manual, services, I don't know

Table 2: Distribution of adolescents age 15-19 by their exposure to family planning information, knowledge about fertility and contraceptive method, Ethiopia DHS 2016

Variables		Frequency	Percent
Heard family planning message on radio on last few months	Yes	91	18.1
	No	413	81.9
Heard family planning messages on TV on last few months	Yes	68	86.6
	No	436	13.4
Read about family planning messages on newspaper/magazine last few months	Yes	21	4.2
	No	483	95.8
Received family planning text message on mobile phone	Yes	5	1.1
	No	498	98.9
Visited by field worker in the last 12 months	Yes	101	20.1
	No	402	79.9
Field worker talk about family planning	Yes	50	9.9
	No	51	10.2
Visited health facility in the last 12 months	Yes	211	42.0
	No	292	58.0
Told about family planning in the health facility	Yes	77	15.
	No	135	26.7
Knowledge of ovulatory period	During her period	37	7.3
	After period ended	148	29.4
	Middle of the cycle	76	15.0
	Before period begins	33	6.5
	At any time	116	23.0
	Do not know	95	18.8
Knowledge about any contraceptive method	Knows no method	7	1.3
	Knows only traditional method	4	0.7
	Knows modern method	494	98.0
Number of living children	No child	308	61.1
	One child	173	34.4
	Two and more	22	4.5
Decision maker on contraceptive use	Mainly Respondent	34	19.7
	Mainly husband	3	1.9
	Joint decision	133	78.4

Table 3: Bivariate and multivariate logistic regression model showing predictors of contraceptive use among sexually active adolescents, 2016 EDHS

Variables and its category		COR [95% CI]	AOR [95% CI]
Adolescent age category	15-17	.408 (.270, .616)	.524 (.218 1.260)
	18-19	1	
Place of residence	Urban	3.256 (1.882, 5.632)	.692 (.113 4.238)
	Rural	1	1
Heard family planning on radio last few months	Yes	2.365 (1.491 3.750)	1.046 (.405 2.699)
	No	1	1
Heard family planning on TV last few months	Yes	3.323 (1.943 5.682)	.374 (.093 1.506)
	No	1	1
Told about FP at health facility	Yes	3.083 (1.721 5.523)	3.115 (1.385 7.007) *
	No	1	1
Husband Education	No education	.422 (.247 .722)	1.083 (.320 3.671)
	Primary	.445 (.271 .731)	.330 (.107 1.015)
	Secondary & above	1	1
Wealth Index	Poor	1	1
	Average	1.886(1.135, 3.134)	.424 (.130 1.380)
	Rich	4.701(3.070, 7.198)	3.662 (1.353 9.913) *
Respondent occupation	Not working	1	1
	Agriculture	1.407 (.891 2.222)	1.841 (.632 5.359)
	Sales	2.730 (1.447 5.154)	2.599 (.387 17.455)
	Others (skilled, unskilled manual)	1.048 (.577 1.902)	.468 (.085 2.587)
Respondent education	No education	.206 (.106 .399)	.044 (.008 .231) *
	Primary	.369 (.203 .669)	.101 (.024 .414) *
	Secondary & above	1	1
Currently working	Yes	1.797	2.622 (.660

(1.160
2.784)

10.412)

No

1

1

* Significant value at 0.05

Figures

Figure 1

Trends in use of modern contraceptives among sexually active adolescent, Ethiopia DHS 2000-2016

Figure 2

Differentials in contraceptive use among sexually active adolescent by background characteristics, Ethiopia DHS 2000-2016

Figure 3

Supplementary Files

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