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Utilization of family planning and volunteer counseling and testing service and associated factors among preparatory school students in Arba Minch Town, Southern Ethiopia: a cross-sectional study

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Abstract

Introduction: *the utilization of reproductive health service plays significant role in preventing youths from different reproductive related health problems. Adolescents in Ethiopia have inadequate access to information and services. The objective of this study was to assess utilization of family planning and volunteer counseling and testing service and associated factors among preparatory school students in Arba Minch Town.* ***Methods:*** *institutional based cross-sectional study was conducted among randomly selected 522 regular preparatory students in Arba Minch Town from December 01-30/2019. Data was entered and clean into Epidata-4.6 templates then transferred to SPSS-25 statistical software for analysis. A bi-variable and multivariable logistic regression model was used to identify statistically significant variables of the independent variable. Variables with P-value < 0.05 in the final model were considered significant determinant variables.* ***Results:*** *out of the total of 541 selected students, 522 responded to the questionnaires yielding a response rate of 96.48%. The mean age of the study participant was 17.8 with (SD±0.8) years. From those who had sexual intercourse 78.6% and 29.3% of them used family planning and voluntary counseling and testing service, respectively. Sexual intercourse experienced adolescents were 8.24 times more likely utilized F/P service than their counterparts (Adjusted Odds Ratio (AOR)=8.236, 95% CI: 6.18-15.76). The study participants living with both parents were about 1.6 times (AOR=1.645, CI: 1.077-2.513 more likely to use voluntary counseling and testing service compared to those living with others.* ***Conclusion:*** *based on this finding majority of adolescents used family planning, but voluntary counseling and testing service utilization were low. The reasons for not utilizing voluntary counseling and testing service were shamed from friends and unfriendly approach of health workers during service provision. So, we can recommend that encouraging adolescents open discussion about reproductive health service utilization with different peoples, open discussion within couples and encourage to increase female education are important steps to improve adolescent's reproductive service utilization.*

Introduction

Reproductive health (RH) is defined as "A state of physical, emotional, and social well-being, not merely the absence of illness or infirmity, in all matters relating to the reproductive system and its functions and processes. It includes human sexual activity and reproductive processes and implies that people can have a responsible, satisfying, and safe sex life, as well as the ability to reproduce and the freedom to choose whether, when and how often they reproduce [1]. Reproductive health is a universal concern, but it is special importance for female during reproductive period. However male also demands specific reproductive health needs and have power in some reproductive health matters [2].

Adolescence can be described as those youths age found between 10 up to 19 years. It is transition period from youthful to maturity [3]. It is demarcated by significant change in physical, mental, emotional and behavior. Adolescence is the time of assignation of an extensive variety of activities that put their life at high risk [4]. And it can also be characterized as a period of high risk taking because adolescents are susceptible to behavioral problems [4-6]. Some of these behavioral problem during puberty are; physical health problem consequences such as abortion, school dropout, out of marriage vows as well as pushing prone to sexually transmitted diseases such as HIV [7]. All these problems can be prevented through sexual and reproductive health service uptake. The benefits of practicing family planning method is encompassing economic growth, prevents pregnancy-related health risks for women, particularly for adolescent girl, educational advances, and women´s empowerment [8]. Contraceptive use has multiple benefits. It prevents unplanned pregnancies,

decreases the number of abortion, and reduces the incidence of death and disability interrelated to complication pregnancy, and childbirths. The benefits of it for long-range of time is increased education for women, and better family health to better family income and robust national economic growth. Increased contraceptive use and reduced unmet need for contraception are essential to improve maternal and adolescent health, and combating HIV [9].

The decisions made during this period of life affect not only the individual welfare of adolescences, but also the wellbeing of whole people. The proportion of unmet need among married and unmarried female adolescence in Central and West Africa is 29.3 and 41.7%, respectively. In general, married adolescents aged 15-19 experience greater unmet need than all married women. Generally, the rate of family planning practice is low in all regions in SSA among 15-19 years old married female adolescent. In Ethiopia there are various cultural and social barriers for gender equality, resulting in poor reproductive indices and high prevalence of harmful traditional practices [10]. Ethiopia is a country where unsafe abortion is a prominent cause of maternal mortality and injury [11]. However as many research findings disclosure that the Reproductive Health Services (RHS) utilization among adolescents are lower than other age categories [12].

Adolescents in Ethiopia have limited access to Sexual and Reproductive Health (SRH) information [13]. Despite of the high rate of SRH problems; the access of acceptable SRH services to adolescents is very low. This poses a major public health problem such as maternal deaths and other complications resulting from early marriage, unplanned pregnancy, and unsafe abortion in the country. From the overall burden of disease due to complicated child birth; adolescent women accounts for 23% of among women of all ages [14].

Worldwide the estimated number of 3.2 million unsafe abortions occur each year among youth girls aged 15-19 years [15]. According to the 2016 Ethiopian Demographic and Health Survey report, among sexually active adolescents aged 15-19 years, adults who were tested for HIV test were only 22% and 18% respectively [16]. Adolescents´ RHS uptake is low particularly in the Southern Ethiopia in which study area is found [17]. The Ethiopian government, along with other International Non-governmental Organizations (NGOs), has supported activities including the expansion and institutionalization of youth-friendly services through intensive capacity building at all levels of the health system [18]. However, the impact of all these efforts is not felt across Ethiopian educational institutions, as evidenced by ongoing reproductive health issues and challenges for adolescents, such as unwanted pregnancies and their consequences [19]. 0The objective of this study was to assess reproductive health services utilization of adolescents in preparatory schools in Arba Minch Ethiopia. Determining the prevalence of reproductive health service utilization in Arba Minch will contribute to paving the identified gaps and solve the problems related to the service utilization.

Methods

Study design and period: school-based cross-sectional study was conducted to assess the utilization of family planning and volunteer counseling and testing service and associated factors among preparatory school students in December 2019.

Study area: the study was conducted in Arba Minch town which is found in Gamo zone, the Southern Nations Nationalities and Peoples Region (SNNPR). It is located in Southern 505km far from Addis Ababa (capital city of Ethiopia) and 275km southwest of Hawassa (capital town of the regional state). It is structured or divided into 4 sub-city and 11 kebeles in order to facilitate the socio-economic development of the town

residents. Arba Minch is home to 14 governmental health facilities, 34 private clinics, 13 drug stores, and 2 community pharmacies providing health care services for the community also 23 primary schools [8 Governmental, and 15 private (4 of them are 1-4 grade)], 9 high schools (5 Governmental and 4 privates) and 6 preparatory schools (3 Governmental and 3 private schools). All students in randomly selected preparatory schools in Arba Minch town were the study population. All regular students between the age of 15-19 years old enrolled in preparatory school in 2019 and regular preparatory school students, and severely sick students during the data collection period were excluded.

Sample size determination: a single population proportion formula was used to calculate the required sample size by assuming an estimated proportion of Reproductive Health (RH) among of error. Because of multistage sampling method was used; the sample size was multiplied by design effect 1.5 and the final sample size became 541. The sample size was calculated for the second outcome variable, but lower than the sample size calculated from the first outcome variable so we took the larger one.

Sampling technique: after calculating the sample size, a two-stage sampling technique was used to select the study participant. Firstly, students were stratified into eleventh and twelve´s grade stream. The sample size was distributed to each grade proportional to their size. The samples were selected by using the simple random sampling (SRS) technique from each grade. Generally, the required number of students was selected by computer-generated numbers from each grade and sex (Figure 1).

Data collection technique and quality control: data was collected using a semi-structured and pre-tested questionnaire by the self-administered method. The questionnaire was adopted by reviewing different literature [14,20] and some of the variables were adopted from the Ethiopia Demographic and Health Survey (EDHS) questionnaire. The data collection period was from Dec. 10-13/2019. School instructors were used as data collection facilitators. The purpose of the study was explained to study participants in order to identify the clarity of questionnaires and their sensitiveness. To assure the quality of the data, training was given to data collectors and supervisors. The questionnaires were prepared originally in English and translated into Amharic then back to English. Pre-testing of the questionnaire was performed on 5% of the sample in similar setting students in Birbir preparatory which is found near Arba Minch town) before the actual data collection to ensure its clarity, ordering, and consistency. Based on the input from the pretest some questions were rewritten, and the final questionnaire was prepared. The trained school instructors facilitated the data collection process and check the completeness of the questionnaires. To assure the privacy of the information, each participant was assigned to a single sparsely placed seat. Each questionnaire was checked for completeness of the information jointly by the supervisors, and incomplete and inconsistently filled questionnaires were returned to the respondents so that they fill it in full at the data collection site.

Operational definitions of the study variables

Reproductive health services: particularly considered in this study are family planning (FP) and voluntary counseling and testing (VCT) services.

Family planning service utilization: is defined as ever use of any modern contraceptives in the last one year.

Voluntary counseling and testing (VCT) service utilization: it is measured by requesting study participants get HIV testing service voluntarily in the last 12 months [14].

Data management and analysis: data was entered into Epi-Data version 4.6 and exported to SPSS Version 25 software package for analysis.

Descriptive statistics of variables were performed by frequency distribution tables and figures. Bivariable logistic regression was used to identify the association between the dependent and independent variables. The variables whose significance level was less than P<0.25 were considered candidates for the multivariable logistic regression analysis. Before multivariable analysis, independent variables were checked for multi-collinearity effect using a correlation matrix. The Hosmer-Lemshow test was used to test goodness-of-fit to assess the necessary assumptions for the application of multivariable logistic regression. Finally, to determine the independent factors associated with FP and VCT utilization, multivariable logistic regression was done. The strength of association was interpreted using the adjusted odds ratio and 95% CI. Variables with P-value <0.05 in the final model were considered statistically significant.

Ethics approval: the study was reviewed and approved by the Institutional Review Board (IRB) of Arba Minch University College of Medicine and Health Science. The study purpose, procedures, and benefits were explained to participants in local languages. Informed consent was obtained from participants and for participants who were under 18 years of age parental consent was obtained before they filled questionnaires. They were also assured that the information provided would be used only for research purpose and would therefore be strictly anonymous and dealt with confidentially.

Results

Socio demographic characteristic of the study participants: from the total of 541 students, 522 responded to the questionnaires yielding a response rate of 96.48%. The mean age of the study participant was 17.8 with (SD±0.8) years. Among the respondents, 216 (41.4%) and 306(58.6%) were attending grade 11thand grade 12th respectively. Two hundred fifty-two (48.3%) respondents were Orthodox religion follower followed by protestant 247 (47.3%) and Muslim 22 (4.2%). Gamo 380 (72.8%) and Gofa 44 (8.4%) constitute the major ethnic group. The majority of the respondents 499 (95.6%) were unmarried. Regarding to participants family educational status 160 (30.7%) of fathers and 72 (13.8%) of mothers were above secondary education (Table 1).

Sexual history of the participants: out of 522 participants 307 (58.8%) have boy/girlfriend and among these 141 (45.9%) of them had two and above two sexual partners. From a total participants 159(30.5%) have had sexual intercourse with their friends in the past 12 months (Table 2).

Awareness and source of information: about 468 (89.7%) of study participants were heard information about reproductive health services, among these 324 (62.1%) and 297 (56.9%) of the participants had information (awareness) about family planning and VCT services respectively. The most common source of information for respondents were mass media and health care provider followed by teachers. Three hundred and sixteen (316(60.5%) study participants were discussed about reproductive health service, 174 (33.3%) and 195 (37.4%) of the study subjects were discussed about family planning and VCT services respectively. One hundred ninety seven (37.7%) were discussed with their friends or peer groups followed by parents or guardian 94 (18%) (Table 3).

Family planning service utilization: among sexual intercourse experienced study participants 125(78.6%) utilized FP service. Male condoms were most commonly used 79(63.2%) followed by 45(36%) pills and the least used modern contraceptive was female condom only four (3.2%) during their sexual intercourse. The major reason for not using family planning service for 162 (31%) of the study participant was have no money for the service followed by one hundred thirty six (26.1) felt ashamed from their friends (Table 4).

Voluntary counseling and testing service utilization: among 522 students participated in this study, 153 (29.3%) of them had voluntary counseling and testing service. The reason for not using VCT service were felt ashamed from friends 171 (32.8%) followed by eighty six (16.5%) of non-convenient behavior of health care providers (Table 5).

Associated factors for family planning service utilization: in the bi-variable logistic regression analysis variables such as sex, marital status, co-residence, mother´s educational level, father occupation, discussing about RH and FP, discussing on RH with parents and health care providers and having sexual intercourse experience were associated with family planning service utilization. But in multivariable analysis variables such as marital status, ever had boy or girl friend ever had sexual intercourse with in the past 12 months and discussing on RH with parents were found to be significantly associated with family planning service utilization. Based on this study the odds of family planning service utilization among adolescents those experienced sexual intercourse were 8.24 times (AOR=8.24, 95% CI: 6.1-15.76) more likely to utilize FP service than abstainers. Adolescents who had discussion on RH with their parents were about 2.766 times (AOR= 2.766, CI: 1.25-6.12) more likely to use the service those who do not have discussion with their parents (Table 6).

Associated factors for voluntary counseling and testing service utilization: based on bi-variable analysis at p<0.25 factors such as co-residence, mother educational status, discussing about VCT, discussing on RH, discussing on RH with friends and health care providers were found to be associated with VCT service utilization. Out of the variables which entered to multivariable logistic regression model, at p<0.05 factors such as co-residence with both parents, mother educational status, discussing about VCT and discussing on RH with health care providers were statistical significant determinants of VCT service use. The study participants living with their both parents were about 1.63 times (AOR=1.631, CI: 1.07-2.49) more likely to use VCT service compared to those who living with others or alone. The children of formal educated mothers were about 1.88 times more likely to utilize VCT service than those whose mothers had no formal education (AOR=1.888, CI: 1.06-3.36). In this study adolescents who discussing about VCT service and discussing about RH with health care providers were about 2.077 and 2.53 times more likely to utilize VCT service when compared to their counterparts (AOR=2.077, CI: 1.207-3.573 and AOR=2.532, CI: 1.143-4.609) respectively (Table 7).

Discussion

One of the most important aspects of the health extension program is the adolescent reproductive health which is designed to focus on the production of healthy adolescents that will effectively succeed the present generation [1]. This school-based study assessed the patterns of family planning and VCT service utilization and associated factors is important to evaluate the progress towards addressing reproductive health problems of adolescents. Voluntary counseling and testing is an essential element of RH service in the fight against HIV/AIDS. Family planning service utilization is critical in preventing adolescents from different health and health related problems that have a negative impact on the overall aspects of adolescents´ health status. In this study, the overall utilization of family planning service among sexual intercourse experienced adolescents was 78.6%. This finding was nearly in agreement with the studies conducted in Nigeria 81.6%, Gondar 79% and Goba 72.4% [14,20,21]. However, this finding was higher than the study conducted in Hadyia zone 64.5%, North Shewa 27.9% and Kachabirra 17.6% [20-22]. This difference might be due to different characteristics of individuals between the study areas and design, whereas this study was conducted in urban and have higher educational level; so adolescents might have good knowledge and attitude towards family planning service utilization.

This study revealed that VCT service utilization was 29.3% from total study participant and 31.6% from sexually active study subjects. This study outcome is similar with the finding of the study conducted in Kachabira 38.2% Southern Ethiopia [23]. And also, lower than the research findings done in Nekemt 59.2%, Ancha 45.8% and Karamoja region, Uganda 82% [20,24,25]. This variation could be due to the recent nationwide noticeable emphasis decrement no the fight against HIV/AIDS related health promotion and preventive activities. Other reason could be; feeling ashamed of friends and unfriendly handling and non-convenient behavior of health care providers.. This study revealed married adolescents were 4.24 times more likely utilized FP service than their counterparts. This could be due to increased open discussion on sexual and reproductive health issues or family planning between couples. This finding is consistent with a study done in Kenya and Harar, Ethiopia [15,26].

In this study discussing on RH with parents were found to be significantly associated with family planning use than their counterparts. Discussion on the service with different people has an effect on FP service utilization. Adolescents who discussed about RH service with their parents tend to use family planning more than those who do not discussed. This is consistent with the studies conducted in Gondar and Anchar [14,24]. This variation might be because discussion allows adolescents to create an opportunity to exchange information that increases further understanding about RH service and its benefit. The practice of family planning service utilization among adolescences who have had sexual intercourse in last one year was higher than abstainers. This finding is consistent with the study done in Goba and Nekemet [20,25]. The possible reason sexually experienced individuals might have more time to discuss with their partner about family planning to avoid the risk and consequences of sexual vulnerability and they may also care each other.

Voluntary counseling and testing (VCT) service utilization among adolescents' co-residence with both parents were high when compared with those who live others or alone. This is similar with the study conducted in East Gojjam [27]. This difference could be because of information and experience exchange among parents. This study involved adolescents of formally educated mothers from the VCT service more than that of the children of illiterate mothers. This finding supported by the study conducted in Goba [14,20,21]. The possible justification could be educated mothers may have better information and awareness about HIV/AIDS and VCT they may encourage their children to utilize the service. In this study adolescents who discussion on VCT service with health care providers utilize more than not discussed with health care providers. This is also observed in the study conducted in Medawolabu University, Gondar and Goba [14,20,28]. This could be justified as discussion about VCT with health care providers allows adolescents to exchange better information that facilitate further understanding and avoid misunderstanding on the service. Also discussing with health worker may not need referral to other health professional for the service.

Strength and limitation: this study addressed previously unscathed and currently public health concerns.. Gender balance is considered during sampling technique by proportionally allocating for both sexes each grade. Data was collected through self-administered questionnaire which may decrease social desirability bias.

Limitation: this study shares the limitations of cross sectional studies. It is impossible to decide causal relationship among dependent and independent variables. This study was conducted in two randomly selected governmental preparatory schools, which means the result, may not generalize to adolescents from private preparatory schools and for rural adolescents.

Conclusion

In general majority of sexual intercourse experienced adolescents were used family planning service whereas VCT service utilization was low. This study shows that marital status, discussed on with parents, having boy or girlfriend and ever had sexual intercourse were the factors affecting FP service utilization, whereas co-residence both parents, mother educational status, discussed with Health care providers and discussed about VCT were the significantly determinant factors for VCT service utilization. The reason for not utilizing FP service was having no money for the service, followed by feeling ashamed of friends and harsh and unfriendly approach of health care providers during service provision were the two major reasons for not utilizing VCT service. Based on the study finding, we can recommend that to health initiation and health care providers: encourage adolescents open discussion about RHS utilization, couples open discussion about RHS utilization, encourage couples open discussion about RHS utilization and encourage female education.

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What is known about this topic

- *Adolescence is a critical stage youth initiates sexual practice that put their life at high risk;*
- *Utilization of reproductive health service plays a vital role in preventing adolescents from different reproductive related health problems such as illegal abortion, dropping out from school, out of marriage vows as well as pushing vulnerable to sexually transmitted diseases (STD's) and HIV;*
- *In Ethiopia, adolescents' RHS uptake is low particularly in the Southern Ethiopia in which study area is found.*

What this study adds

- *Majority of adolescents used family planning, but voluntary counseling and testing service utilization were low among preparatory school students in Arba Minch Town, Southern Ethiopia;*
- *The reasons for not utilizing VCT service were felt ashamed from friends and unfriendly approach of health workers during service provision;*
- *Factors such as co-residence with both parents, mother educational status, discussing about VCT and discussing on RH with health care providers were statistical significant associated with VCT service utilization.*

Competing interests

The authors declare no competing interests.

Authors' contributions

Melaku Mata: drafted study design, carried out data collection supervision, data management, data analysis, and interpretation. Gizaw Sisay: participated in statistical data analysis, result interpretation, and prepared the manuscript. Meseret Girma: participated in data analysis and interpretation and revised the drafted manuscript. Zeleke Girma: participated in the study design and revised the drafted manuscript. Fitsum Wolde: participated in data analysis and interpretation and revised the drafted manuscript. Getasew Berhanu: revised the drafted manuscript. All authors read and approved the final manuscript.

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Tables and figure

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Table 7: bi-variable and multivariable logistic regression analysis of associated factors for VCT service utilization among preparatory schools, Arba Minch town, Southern Ethiopia

Figure 1: diagrammatic presentation of the sampling procedure

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Table 1: socio demographic characteristics of preparatory school students in Arba Minch town southern Ethiopia

Variable		Frequency	Percent
Sex	Male	296	56.7
	Female	226	43.3
Age	15-16	26	5
	17-19	496	95
Educational status	11^{th} grade	216	41.4
	12^{th} grade	306	58.6
Marital status	Single	499	95.6
	Married	21	4
	Divorced	2	0.4
Religion	Orthodox	252	48.2
	Protestant	22	4.2
	Muslim	247	47.3
	Others	1	0.2
Ethnicity	Gamo	380	72.8
	Gofa	44	8.4
	Amara	32	6.1
	Wolayta	26	5
	Zeyise	24	4.6
	Others	16	3.1
Co-residence	with both parents	334	64
	With mother only	66	12.6
	With father only	21	4
	With relatives	40	7.7
	With friends	52	10
	Alone	9	1.7
Father's educational status	No formal education	48	9.2
	Completed primary education (1-8)	187	35.8
	Completed secondary education	127	24.3
	Above secondary education	160	30.7
Mother's educational status	No formal education	93	17.8
	Completed primary education (1-8)	240	46
	Completed secondary education	117	22.4
	Above secondary education	72	13.8
Father's occupational status	Formal employment	188	36
	Casual laborer	66	12.6
	Self-employment	268	51.3
Mother's occupational status	Formal employment	88	16.9
	Casual laborer	18	3.4
	Self-employment	70	13.4
	House wife	346	66.3

Table 2: sexual history of the preparatory school students in Arba Minch town southern Ethiopia			
Variables	**Response**	**Frequency**	**Percent**
Ever had boy/girlfriend	Yes	307	58.8
	No	215	41.2
Ever had sexual intercourse	Yes	159	30.5
	No	363	69.5
Number of sexual partner	One	166	54
	Two and above	141	46

Table 3: the frequency source of information for preparatory school students in Arba Minch town southern Ethiopia			
Variables	**Response**	**Frequency**	**Percent**
Parents	Yes	69	13.2
	No	453	86.8
Friends	Yes	72	13.8
	No	450	86.2
Teachers	Yes	83	15.9
	No	369	84.1
Mass media	Yes	122	23.4
	No	400	76.6
Health worker	Yes	122	23.4
	No	400	76.6

Table 4: types of contraceptives ever utilized among preparatory school students in Arba Minch, Southern Ethiopia			
Variables	**Response**	**Frequency**	**Percent**
Male condom	Yes	330	63.2
	No	192	36.8
Female condom	Yes	17	3.2
	No	505	96.8
Pills	Yes	188	36.0
	No	334	64.0
Injectable	Yes	54	10.4
	No	468	89.6
Implants	Yes	38	7.2
	No	484	92.8
Others	Yes	17	3.2
	No	505	96.8

Table 6: bi-variable and multivariable logistic regression analysis of associated factors for family planning service utilization among preparatory school adolescents in Arba Minch town, Southern Ethiopia						
Variable		**Family planning service utilization**		**COR (95% CI)**	**AOR (95% CI)**	**P-value**
		Yes	No			
Sex	Male	61	235	0.65(0.43-0.94)	1.18(0.646-2.16)	0.587
	Female	64	162	1	1	
Marital status	Married	23	6	14.69(5.83-37.04)	3.96(1.08-14.52)*	0.037
	Unmarried	102	391	1	1	
Co-residence	With both parents	68	266	0.58(0.39-0.88)	0.76(0.41-1.39)	0.376
	With others	57	131	1	1	
Mother educational status	Educated	111	318	0.508(0.276-0.933)	0.573(0.248-1.324)	0.192
	No education	14	79	1	1	
Father occupational status	Formal employment	74	194	0.579(0.366-0.915)	0.734(0.372-1.448)	0.372
	Daily laborer	17	49	0.910(0.493-1.679)	0.473(0.193-1.159)	0.102
	Self-employ	34	154	1	1	
Discussed about Reproductive Health (RH)	Yes	98	218	2.98(1.86-4.767)	0.983(0.46-2.09)	0.965
	No	27	179	1	1	
Discussed about family planning	Yes	64	110	2.73(1.81-4.14)	1.51(0.72-3.09)	0.273
	No	61	287	1	1	
Have you discussed on RH with parents	Yes	44	50	3.77(2.35-6.04)	2.76(1.25-6.16)*	0.012
	No	81	347	1	1	
Have you discussed on RH with health workers	Yes	13	18	2.44(1.16-5.14)	2.15(0.66-6.96)	0.201
	No	112	379	1		
Have you ever had sexual intercourse	Yes	108	51	43.1(23.89-77.74)	8.24(6.1-15.76)**	0.000
	No	17	346	1	1	
Key *= Significantly associated; **= strongly associated; 1= reference; COR: crude odd ratio; CI: confidence interval; AOR: adjusted odd ratio						

Table 7: bi-variable and multivariable logistic regression analysis of associated factors for VCT service utilization among preparatory schools, Arba Minch town, Southern Ethiopia

Variable		VCT utilization		COR(95% CI)	AOR(95% CI)	p-value
		Yes	No			
Co-residence	With all parents	108	226	1.51(1.01-2.27)	1.63(1.06-2.49)*	0.024
	With others	45	143	1	1	
Mother educational status	No formal education	17	76	0.48(0.27-0.84)	0.53(0.29-0.94)*	0.03
	Educated	136	293	1	1	
Discussed about RH	Yes	104	212	1.57(1.05-2.39)	0.74(0.41-1.34)	0.332
	No	49	157	1	1	
Discussed on RH with friends	Yes	71	126	1.67(1.13-2.45)	1.38(1.83-2.38)	0.242
	No	82	243	1	1	
Discussed on RH with H/workers	Yes	15	16	2.39(1.15-4.98)	2.53(1.14-5.61)*	0.032
	No	138	353		1	
Discussed about VCT	Yes	77	118	2.15(1.46-4.01)	2.07(1.21-3.57)*	0.008
	No	76	251	1	1	

Key *= Significantly associated; **= strongly associated; 1=reference; RH: reproductive health; VCT: voluntary counseling and testing; COR: crude odd ratio; CI: confidence interval; AOR: adjusted odd ratio

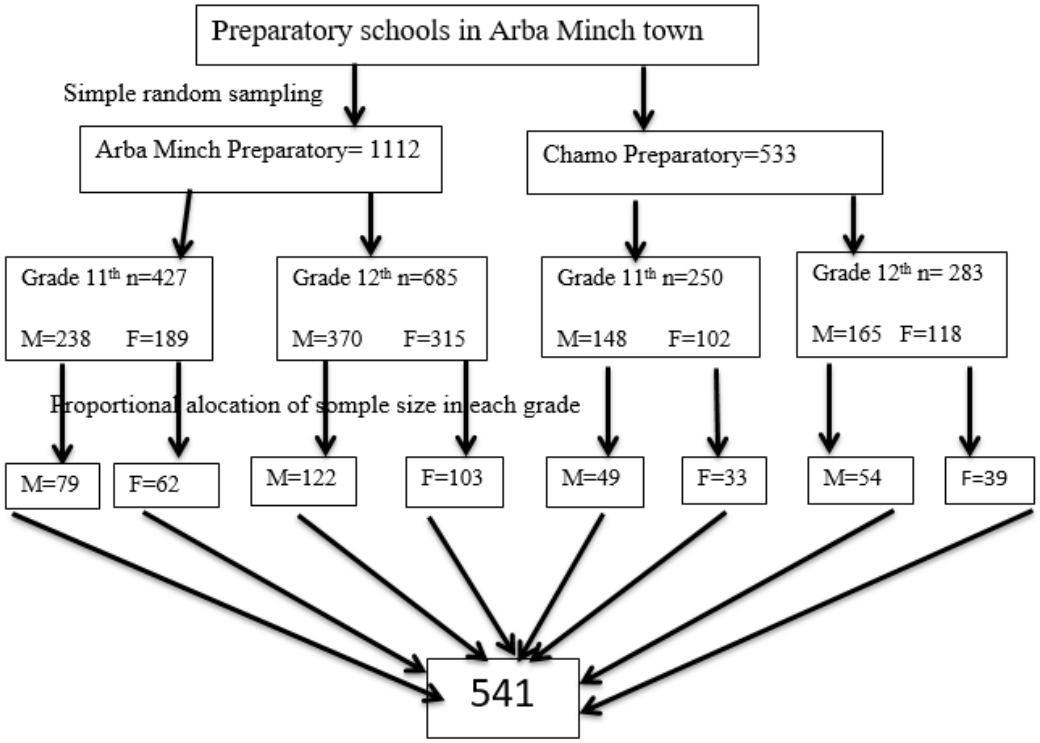

Figure 1: diagrammatic presentation of the sampling procedure