Prevalence and Correlates of Youth Contraceptives Utilization among Students of Selected Higher Education Institutions in Addis Ababa

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Abstract

Compared to adults, youth are characterized by significant physiological, psychological and social changes and aspirations that place their life at risky sexual and reproductive behaviors. Despite the global initiatives and enabling national policy environments, in practice most regions of the world still fall short of meeting these commitments. In the developing world, including Ethiopia, adolescents' sex and sexuality are socio-culturally sensitive issues to discuss openly. Because of that many young people in general and students in particular are less informed, less experienced in, and less comfortable about accessing contraceptive services than are adults. That results in very low uptake of contraceptive services among youth. The objective of this paper is, therefore, to analyze the prevalence of and factors associated with contraceptive services uptake among 354 randomly selected young students from two higher education institutions in Addis Ababa, Ethiopia. Data were collected using a cross-sectional survey questionnaire. The key predictors of contraception use were examined using binary logistic regression model. Results show that nearly half of the respondents were users of contraception, which is comparable to results from other studies. Being female; not having contraceptive methods knowledge; being from a woman-headed household; and not being sure about the adequacy/number of service centers are positively associated with the odds of contraceptives uptake, which does not necessarily equate with current use. Whereas, not obtaining information from service providing workers; having no concern about service providing workers' friendliness and/or confidentiality; and privacy in getting the service were negatively associated with contraceptives uptake. Female students can be used to better influence their male counterparts to use contraceptives. The findings suggest that service providing workers may be used as promising sources of information to boost contraceptives uptake. Uptake can be increased by minimizing barriers that hinder privacy, provider unfriendliness and service non-confidentiality. Family planning programs including counseling should employ Behaviour Change

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Communication (BCC) focusing on minimizing myths, misconceptions, shame, rumors, societal stigma, and traditional beliefs.

Keywords: Reproductive health, family planning, contraceptives uptake, higher education institutions/universities.

1. INTRODUCTION

Youth reproductive health services provision and utilization remains one of the most important population and development strategies since the 1994 Cairo International Conference on Population and Development (ICPD). There were 1.8 billion adolescents and youth, constituting 25% of the world's population (UNFPA, 2014). Close to 85%-89% of the global young people reside in developing countries (WHO, 1999, Ahinkorah, 2020;). Youth are defined as persons between 15 and 24 years of age and are characterized by significant physiological, psychological and social changes that place their life at high risk (WHO, 2018; 1999). The World Health Organization/WHO (1999) defines reproductive health as a state of complete physical, mental and social well-being, and not merely the absence of reproductive disease or infirmity. It implies that people can have a satisfying and safe sexual life, the capability to reproduce, and the freedom to decide if, when, and how often to do so.

Family planning/ contraceptive services have been among top priorities in the global population and development initiatives following the Cairo ICPD, namely, the Millennium Development Goals (MDGs) and its successor, the Sustainable Development Goals (SDGs). The United Nations has prioritized increasing and sustaining utilization of family planning/ contraceptives services as one of its eminent strategic investment focus areas in attaining sustainable development goals (SDGs). According to the Global Consensus Statement (USAID et al. 2020), various statements and conventions were also ratified by the World Health Organization (WHO), the International Confederation of Midwives (ICM), and United Nations Population Fund (UNFPA) that advocate for the rights of adolescents and youth to access a range of contraceptive methods. According to the statement, youth often encountered numerous barriers in accessing pregnancy or birth regulating contraceptives despite all these efforts, and in practice, most regions of the

world still fall short of meeting youth reproductive health needs (WHO, 2018).

In terms of consequence, existing literature shows that early pregnancies and sexually transmitted infections (STIs) including human immune deficiency virus (HIV) are increasing at unprecedented rates among adolescents than among adults (Abebe & Awoke, 2014; Correia *et al.* 2009). An estimated 215 million women globally have unmet need for effective contraception (Asiimwe et al., 2014). The figure for young women aged 15-24 across 61 low- and middle-income countries was 33 million (MacQuarrie, 2014). These problems lead not only to several unwanted pregnancies, abortions, sexually transmitted infections (STIs), and societal and family rejection (Appiah-Agyekum and Kayi , 2013; Peltzer & Pengpid, 2015), but also about 70 % of the premature deaths among adults are largely due to behaviors initiated during adolescence (Motuma et al., 2016). Approximately 16 million adolescents, aged 15-19, give birth annually - for some, these births are planned but for many others they are unplanned (WHO, 2012). It is estimated that about 80 million unplanned pregnancies occur in the world every year (Hoque et al., 2013). Unsafe abortion among adolescents remains very high - for example, it is 51% for Africa (Shah and Ahman, 2012). In Africa, in general, (1) teenage pregnancy rates are the highest in the world, (2) unsafe abortion is very high, and adolescent maternal mortality is among the leading causes of death, and (3) a significant number of young people (2.6 million) are living with HIV with an infection rate of 430,000 per year (Binu et al., 2018; UNESCO, 2014; WHO, 2014).

Despite the high prevalence and severe consequences of unprotected sex, unintended pregnancy and childbearing, studies show that unmarried adolescents have not been commonly included in the global monitoring of contraceptive use (Sanchez-Paez & Ortega, 2018). Many youth are simply less informed, less experienced, and less comfortable in accessing health services for reproductive health than are adults (Appiah-Agyekum & Kayi, 2013; Binu et al., 2018). Youth often lack basic reproductive health information, knowledge, and access to affordable and confidential health services for reproductive health. They do not feel comfortable in discussing reproductive health matters with their parents (Motuma et al., 2016).

For this reason, a global consensus statement *Expanding Contraceptive Choice for Adolescents and Youth to Include Long Acting and Reversible Contraception* (LARC thereafter) was released in October 2015, and formally launched at the 2016 International Conference on Family Planning (Fikree *et al.*, 2017). The statement provides evidence on the safety and effectiveness of LARCs for adolescents and youth and addresses commonly held myths and misperceptions regarding their effect on young women's health and fertility (Fikree *et al.,* 2017). Positioning the needs and interests of young people within such broader global efforts to increase access to a full range of contraceptive options can be instrumental in accelerating progress toward young people's full access to method choice (Fikree *et al.,* 2017). The global consensus statement implies that, youth friendly services should be accessible, acceptable, and appropriate for the youth. They should be rendered in the right place with reasonable price, sometimes for free when necessary and delivered in the right style to be acceptable to the young people and are effective, safe and affordable (see also WHO, 2018).

When it comes to Ethiopia, the situation is not any better if not worse. With more than one-third (33.8%) of the population aged 10–24 years (Binu *et al.,* 2018), Ethiopian youth make up the largest proportion of the population as is elsewhere in sub-Saharan Africa. In pursuing youth reproductive health agenda targeted to be achieved by 2015, the Ethiopian government developed a 10-year National Adolescent and Youth Reproductive Health Strategy (MoH, 2014), and pledged to put in place youth-friendly reproductive health services, notably, contraceptives. Despite these initiatives, there is little information about the extent to which youth utilize available reproductive health services in Ethiopia as most studies that examined the use of health services primarily focused on adults (Abebe and Awoke, 2014). The available little information shows that the services utilization among the youth is low and faces a lot of challenges related to the sensitive nature of adolescents' sex and sexuality. Evidence shows that 19% of youths had premarital sexual intercourse with the mean age of 16.48 years at the first sexual intercourse, and there was 42.1% youth sexual risk behavior, 19.5% self-reported STIs prevalence, and abortion rate of 65 per 1000 (Binu *et al.,* 2018). The Federal Ministry of Health has acknowledged a disparity existing between the sexual

and reproductive health needs of young people and the services that are available to them (see. e.g. Kereta and Mitchell, 2015; MoH, 2014;). A similar gap is also reported in another study by Abebe and Awoke (2014) on selected urban areas of Ethiopia (Oromia, Amahara, Southern people and Tigray).

One can argue that if youth in general have risky sexual and reproductive behaviors, then young university students are even more so since their conditions can be aggravated by peer influence on the one hand, and decreased parental control, on the other hand, thereby increasing their exposure to sexual activity and risky behavior. Available literature (e.g. Dimoso, Masaki and Suleiman, 2014) shows that after joining universities, students find themselves in a state of excitement and a significant increase in sexual exposures. Several studies around the world have shown more sexual behaviors and the attended risks among youth and university students (Appiah-Agyekum and Kayi, 2013; Dimoso, *et al.,* 2014).

Understanding factors that influence young students use of modern contraceptives is needful for designing interventions, strategies, and policies to address early pregnancies, unsafe abortion, maternal mortality and sexually transmitted infections. Peltzer and Pengpid (2015) summarize factors influencing university students' non-use (or low use) of contraceptives as follows: (1) socioeconomic and demographic factors such as age, sex, religiosity, university duration, contraceptive price; (2) sexual behavior such as early sexual debut, previous experience of pregnancy, number of sexual partners, pornography; (3) psychosocial factors or internal assets such as locus of control, personal initiative and assertiveness, perceived life satisfaction, and psychological distress; and (4) other factors such as perceived side effects and lack of exposure to healthcare provider working on contraception.

However, only limited research has been conducted on the prevalence and determinants of contraceptive use among university students in the context of the developing countries in general (Peltzer and Pengpid, 2015), and in Ethiopia in particular (see e.g. Binu et al., 2018; Dida, Darega and Takele, 2015). For Ethiopia, Dida, *et al.* (2015) reported lack of sense of vulnerability among young university students who have higher tendency to risky sexual

behaviors. Tilahun, et al. (2011) noted more than 60% of the pregnancies among adolescents to be unintended, and the associated abortion to be one of the most significant causes of morbidity and mortality. Perhaps as a result, there is little and fragmented policy response to the problem in higher education institutions (Dida et al., 2015). More empirical evidence on the level of reproductive health services uptake and on the factors influencing that level of uptake is needed for an informed policy making. This is important because young university students are at increased sexual risk because they (1) are accompanied with freedom from family control (Abdu, *et al.,* 2017); (2) mostly live in campuses without boundaries or security fences given the preponderance of recently established universities (Dingeta, *et al.,* 2012); (3) are exposed to increased peer pressure, economic problems and lack of youth friendly recreational facilities (Dingeta, *et al.,* 2012); (4) are people with multiple sociocultural grounds beginning autonomous life at younger age for first time which encourages them rush to a range of maladaptive high-risk activities like alcohol use, substance and sexual abuse (Kebede, *et al.,* 2018); (5) are unable to make correct assessment of their own sexual risk (Dagne, *et al.*, 2017); and (6) tend to be sexually adventurous, often with multiple partners and do not consistently use condoms (Dagne *et al.,* 2017).

Young students in Ethiopian higher education institutions, therefore, have a double responsibility of managing their sexual behaviors and academic activities since, on the one hand, youth pregnancy is increasingly recognized and maternal and newborn morbidity is associated mainly with (unsafe) abortions (Baldwin and Edelman, 2013), and on the other, mismanaged sexual behaviors among young students is one of the factors that results in poor academic performances, dropouts and one's failings to define future career paths. Contraceptive use can not only insulate young students both against unintended pregnancy and the associated risk of abortion, STI infection and mortality, but it helps them achieve their future aspirations as well. In the absence of reproductive health services delivery designed to cater the special and added needs of these young students, one can reasonably expect more sever reproductive health problems among youth in higher educational institutions.

The purpose of this paper is, therefore, to analyze the prevalence of and factors associated with contraceptive utilization using survey data collected in 2018 from 354 randomly selected young students in selected higher education institutions in Addis Ababa. Youth are not homogeneous groups as they often are thought to be (WHO, 2018), but instead differ substantially in their contraception needs and priorities depending on their individual, household and community level demographic and socioeconomic characteristics. Appropriate and meaningful policy response requires knowledge of how young people differ in these characteristics among themselves and of whether and to what extent these characteristics determine their contraceptive uptake practices.

2. DATA AND METHODS

2.1 The Study Setting

In less than three decades, Ethiopia has massively expanded the number of universities from just 2 before 1991 (both public) to more than 50 excluding private universities. The figure also does not include the colleges and university colleges whether public and private. The key consideration deriving the massification of the Ethiopian higher education, as it is dubbed by many, is that of equity. As such, the government has established several public universities and colleges fairly distributed all over the country. While equity has been significantly addressed as such, the country's being one of the poorest countries in the world with a serious shortage of finance, poor capacity (human, infrastructure, technical) and governance or management limitations meant that equity has to be achieved at the cost of poor-quality education and student service. Student services include a range of tasks such as dormitory, catering, cost sharing, career counselling, student counselling, networking training and events, language center, sports and student gym, study training and workshops, and campus healthcare, the latter being of interest to the present paper. Much has been said in policy debates, educational conferences, and the popular media alike regarding the poor-quality education facing the country's higher education. Clearly, the massive enrollment of students in the newly expanded higher education institutions

has significant implication for the quality and type of services rendered to students. However, relatively little has been said or written regarding student services.

In Addis Ababa, there were five public and five universities by the time of the survey (2018). These are Addis Ababa University, Addis Ababa Science and Technology University, Civil Service University, Kotebe Metropolitan University, Defense University (all public); and Unity University, St. Mary's University, Rift Valley University, Alpha University and Admas University (all private). As it is discussed in the next section, Addis Ababa University (AAU) and Unity universities were chosen for the study. Total number of students in Addis Ababa University by the academic year 2017/18 was 16576, whereas the figure for Unity University was 6892.

2.2 Sampling

An institution based, multi-stage, stratified random sampling technique was applied to select respondents. First, one public and one private university, namely, Addis Ababa University and Unity University were chosen, from five public and five private universities existing in the city, purposively on the basis of size and program diversity. Second, three colleges and two faculties were randomly selected from Addis Ababa University and Unity University, respectively. Further, two departments were chosen from each college and faculty in both universities. However, some element of purposive sampling was also applied here so as to include students from health/public health departments. The purpose here was not to do rigorous comparison per se, but to include a health department variable and see whether being in a health department relative to being in other departments has a different influence on contraceptives uptake. Finally, 300 students were selected from Addis Ababa University and 124 from Unity University using a stratified systematic random sampling. Students were stratified by their year of study, departments, and sex/gender.

2.3 Measurement

Contraceptive use, which is the dependent variable in this paper, refers to the percentage of youth who have ever attended health facilities for contraceptives. Contraceptive uptake is one of the key indicators of the immediate and long term reproductive needs of young people (Kerby, 1994). It is a dummy variable and takes a value *1* if youth have ever used the given type of reproductive health service and *0* otherwise (see e.g. Abebe & Awoke, 2014; Bam et al., 2015; Binu et al., 2018; Dida, Darega & Takele, 2015; Negash et al., 2015 for similar measurement procedures).

The independent variables were categorized into individual characteristics (sex, age, university duration, department, religion, pocket money, knowledge of contraceptives,[3] source of reproductive health service information, and preferred time of service use); household characteristics (parental education, occupation and household headship status); sexual characteristics type of contraceptive usually used, number of sexual partners at a time, and decision making power on contraceptive use); and service providers' characteristics (university type, adequacy/convenience of service centers, service cost, whether provider is judgmental, provider friendliness, service confidentiality, and service waiting time) (see Bam et al., 2015; Berhane et al. 2005; Binu et al., 2018; Dida et al. 2015; Gelaye et al. 2014; Negash et al., 2015 for similar procedures).

2.4 Data collection and analysis

Given the nature of the research question to be answered (prevalence of contraceptive uptake and its determinants), a quantitative approach was adopted. Adopting a cross-sectional survey design, the data were collected using a self-administered structured questionnaire. Data were entered using Epi Data version 3.1 and then exported to SPSS Version 20 for analysis purpose. Bivariate descriptive statistics using cross tabulation was employed to assess any bivariate association between the dependent variable and each

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[3] Knowledge of contraceptives was measured by asking a respondent a single question of whether s/he has knowledge or not about contraceptives (yes/no).

of the independent variables. Finally, both adjusted and unadjusted odds ratio were estimated using binary logistic regression to examine determinants of the given reproductive health service uptake.

3. RESULTS AND DISCUSSION

3.1 Results from Descriptive Statistics

3.1.1 Individual characteristics and contraceptive use

Out of the 424 youths invited to participate in the study, 407 (96%) returned the questionnaire. Out of these 63 (15.5%) questionnaires were discarded for incompleteness and/or inconsistency, resulting in the total sample size of 354. Table 1 below shows that the majority of sample students (60.5%) were males. The average age was $21.4\,(\pm SD\,1.9)$ for male respondents and $20.9\,(\pm SD\,1.6)$ for females. More than half (54.8%) were from non-health departments. Among all students the greater number (28.5%) were year III, followed by year II, 89 (25.1%). In terms of religion, the majority (60.5%) were Orthodox Christians followed by protestant religion followers (17%) and Muslims (15.3%). Nearly all the students (95.5%) had pocket money on a regular basis. Similarly, nearly two-third (66.3%) had contraceptive knowledge, and this is lower as compared to some previous studies, which is, for example, 94.4% for Madadawalabu University students (Dida, *et al.,* 2015) and 100% for students of Jimma Teachers College (Gemechu and Teshome, 2017). In terms of source of information, teachers were mentioned as source by most students (74.2%) followed by mass media (65.5%). The role played by parents in informing and educating their children about contraceptives is only about a fifth (20.9%). Finally, the majority preferred to get services when there are no other users (76.1%), suggesting some kind of stigma**.**

Contraceptive utilization rate for this study was 47.2%, and closely compares with the figure reported by some previous studies. For example, contraceptive utilization rate 54% for Medawalabu University students (Dida *et al.* 2015) and 44.4% for Kenyata University students (Njeri, 2016). However, it should be noted that the level of contraceptive use just reported varies by the various individual characteristics. Thus, table 1 shows that the proportion of students using contraceptives is higher among male students than female, students of ages 24-26, students from non-health departments, year IV, Protestant Christians (Catholics have higher proportion, but are small in actual number), those who do not have pocket money (albeit their too low actual number),

those who have good health seeking behavior (contraceptive knowledge), those who get most of the information from health workers and teachers and those who prefer getting the service when there no other users.

Table 1 Characteristic of students by contraceptive use in selected HEI of Addis Ababa, Oct., 2018

Variables		Contraceptive use	
		User No (%)	Non-user No (%)
Sex	Male	116(54.2)	98(45.8)
	Female	51(36.4)	89(63.6)
Age	18-20	58(43.6)	75(56.4)
	21-23	80(48.2)	86(51.8)
	24-26	29(58.0)	21(42.0)
	27-29	0(0.0)	1(100)
Department	Health	75(46.9)	85(53.1)
	Non-health	92(47.4)	102(52.6)
University duration	Year I	37(43.5)	48(56.5)
	Year II	45(50.6)	44(49.4)
	Year III	48(47.5)	53(52.5)
	Year IV	19(61.3)	12(38.7)
	Year V	18(37.5)	30(62.5)
Religion	Orthodox	99(46.3)	115(53.7)
	Muslim	25(46.3)	29(53.7)
	Protestant	31(50.8)	30(49.2)
	Catholic	6(60.0)	4(40.0)
	Others	6(40.0)	9(60.0)
Pocket money	Yes	155(45.9)	183(54.1)

	No	12(75.0)	4(25.0)
Knowledge of contraceptive methods	Yes	158(52)	146(48)
	No	9(18.8)	39(81.2)
Source of information	Parents	33(44.6)	41(55.4)
	Teachers	131(50.0)	131(30.0)
	Health workers	62(53.4)	54(46.6)
	Friends	31(44.3)	39(55.7)
	Posters	14(43.8)	18(56.2)
	Mass media	111(48.0)	117(52.0)
	Social media	44(44.9)	54(55.1)
	Other sources	3(50.0)	3(50.0)
Users' preferred time of service	Regular time	27(36)	48(64)
	Other users not around	137(51.1)	131(48.9)
	Any time	2(22.2)	7(77.8)

Source: Own Survey, 2018.

3.1.2 Household characteristics and contraceptive use

Table 2 shows that the majority of students, i.e. 40% had fathers having a college degree or above and 34.7% had fathers working as employees in private organizations. Finally, 59.1% of the students had fathers with household head status. In terms of proportion of students using contraceptive, the table shows higher rate of contraceptives use among students from more educated parents, households where the parents' own businesses and households headed by both parents.

Table 2. Household characteristics of and the respondents by contraceptive use in selected HEI of Addis Ababa, Oct. 2018

Variables		Contraceptive use	
		User N<u>o</u> (%)	Non-user N<u>o</u> (%)
Father's education	Not read and write	20(45.5)	24(54.5)
	Primary (1-8)	12(50)	12(50)
	Secondary (9-10)	11(47.8)	12(52.2)
	Preparatory (11-12)	17(45.9)	20(54.1)
	Certificate or Diploma	41(57.7)	30(42.3)
	Degree and above	50(39.4)	77(60.6)
Father's occupation	Has no job	6(50)	6(50)
	Private employee	54(47.4)	60(52.6)
	Government employed	33(45.8)	39(54.2)
	Own business	51(50)	51(50)
	Farmer	11(37.9)	18(62.1)
Head of household	Father	93(44.7)	115(55.3)
	Mother	25(46.3)	29(53.7)
	Both	49(54.4)	41(45.6)

Source: Own Survey, 2018.

3.1.3 Sexual characteristics and contraceptive use

Table 3 shows that close to half of the respondents, 49.4%, indicated that they have had sexual exposure. This level of exposure in the present paper closely compares with Madawalabu University students' exposure at 40.3% and that of previous study of Addis Ababa University students at 50%; but is higher than Wolayta Sodo University students' exposure, 35.5% (Dida *et al.* 2015). While including students who do not have sexual exposure in the analysis

may bias the results, there are other studies which used similar procedure (see e.g., Dida, *et al.* 2015). On the other hand, nearly half of the cases would have to be dropped if students without sexual exposure have to be dropped. The table also showed that the majority of students use condoms (83.3%) followed by injectables (16.7%); had more than three sexual partners at a time (40.2%) followed by those having two partners (33.3%) and decide jointly with a partner on contraceptive use (50.6%). On the other hand, the table shows that contraceptive use was the highest among those who use pills, condoms, injectables, and emergency contraceptives; those who have four or more sexual partners (though they all are closer in their proportions); and those who decide jointly with a partner regarding contraceptive use.

Table 3. Sexual characteristics of students and contraceptive use in selected HEI of Addis Ababa Oct. 2018

Variables		Contraceptive use	
		User N<u>o</u> (%)	Non-user N<u>o</u> (%)
Respondent sexual exposure	Yes	160(91.4)	15(8.6)
	No	7(3.9)	172(96.1)
Type of contraceptive usually used	Pills	11(100)	0(0.0)
	Emergency contraceptive	12(85.7)	2(14.3)
	Injection	18(85.7)	3(14.3)
	Condom	99(94.3)	6(5.7)
	Withdrawal	2(66.7)	1(33.3)
Number of sexual partners at a time	One	43(93.5)	3(6.5)
	Two	52(89.7)	6(10.3)
	Three	25(89.3)	3(10.7)
	Four and above	39(92.9)	3(7.1)
	Myself	51(92.7)	4(7.3)

| Decision on contraceptive use | My partner | 23(85.2) | 4(14.8) |
| | Joint decision | 80(95.2) | 4(4.8) |

Source: Own Survey, 2018.

3.1.4 Institutional and service provider characteristics and contraceptive use

As Table 4 shows, the majority of students believe that the number and distribution of service providers is not enough and convenient (66.4%). Most students believe that they are unlikely to use service if the services are costly (81.9%), if workers providing the services are judgmental (62.1%), if workers have bad attitude or were unfriendly (88.7%), if service provision was not confidential (90.4%), and if waiting time is too long (68.1%). In terms of contraceptive use, the largest proportion of users were students from private university, those who disagreed that service is costly (despite the low absolute number). It is also higher among those who had neutral opinions regarding the statement that service uptake is unlikely if health worker is judgmental, if providers are unfriendly and/or if the service is not confidential (again despite the low absolute number in both cases), and those who agree that service uptake is unlikely if waiting time is too long.

Table 4. Distribution of respondents by institutional or service provider characteristics and contraceptive use in selected HEI of Addis Ababa Oct. 2018

Variables	Characteristics	Contraceptive use	
		Users N (%)	Non-users N (%)
University type	Public	115(45.1)	140(54.9)
	Private	52(52.5)	47(47.5)
Adequacy(number) of service centers	Yes	38(44.2)	48(55.8)
	No	123(52.3)	112(47.7)
	Not sure	6(18.2)	27(81.8)

Service is costly	Agree	136(46.9)	154(53.1)
	Neutral	18(41.9)	25(58.1)
	Disagree	13(61.9)	8(38.1)
Service uptake is unlikely if health worker is judgmental	Agree	105(47.7)	115(52.3)
	Neutral	35(51.5)	33(48.5)
	Disagree	27(40.9)	39(59.1)
Service uptake is unlikely if providers are unfriendly	Agree	140(44.6)	174(55.4)
	Neutral	13(86.7)	2(13.3)
	Disagree	14(56.0)	11(44.0)
Service uptake is unlikely if the service is not confidential	Agree	147(45.9)	173(54.1)
	Neutral	12(60)	8(40)
	Disagree	8(57.1)	6(42.9)
Service uptake is unlikely if waiting time is too long	Agree	117(48.5)	124(51.5)
	Neutral	27(45)	33(55)
	Disagree	23(43.4)	30(56.6)

Source: Own Survey, 2018.

3.2 Determinants of Contraceptive use

Multivariate logistic regression technique was used to identify determinants of contraceptive use. Contraceptive use (*1*=user; otherwise=*0*) was regressed on 23 predictors categorized into four themes (Table 5). If the variables used in the analytical model are few, there is likely a risk of omitting relevant variables, much like there is likely a risk of getting spurious results due to over-fitting. While the number of variables examined in the given study is not the most important consideration as compared to examining the variables that are most likely to influence the behavior in question, the relevance of the variables used in the present study is informed by the literature. Overall, nine variables, namely: sex, university duration, pocket money, contraceptive methods knowledge, source of information, preferred time of service, adequacy/number of service centers, cost of service and friendliness of

service providers were statistically significant predictors of service use when the crude odds ratio is considered. When the adjusted odds ratio is considered, however, four of them, namely, university duration, pocket money, service cost and teachers as source of information were no more statistically significant while others remain significant. On the other hand, three other variables that were not significant as crude odds ratio, namely, health workers as sources of information, household headship and confidentiality of the service became statistically significant.

Thus, female students relative to their male counter parts (AOR: 1.84; CI: 1.11, 3.05) were more likely to use contraceptives. Young females compared to young males have better involvement in contraceptives because they are aware of their higher vulnerability to the risks associated (Bogale *et al.*, 2011; Gordon *et al.*, 2011). Students who do not have contraceptive methods knowledge relative to those who have (AOR: 5.89; CI: 2.60, 13.32) were more likely to use contraceptives which is not in line with results from most existing research who found higher contraceptives uptake among those with higher knowledge, as in, for example, a study of college graduate students of Harrer town by Minsamo, *et al.* (2019); a study of adolescent modern contraceptive use by Ahinkorah *et al.* (2020) for Mali; a study by Babazadeh *et al.* (2020) for the Democratic Republic of Congo; and a study by Ezenwaka *et al* (2020) for Nigeria. However, it is also in line with a study by Yohannes, *et al.* (2013) for Wolaita Sodo University. Similarly, a study by Ochako et al. (2015) for Kenya found a negative association between higher knowledge of contraceptive methods and contraceptive, and concluded that awareness and knowledge of contraception do not necessarily translate to uptake. Potential explanations for this include shame, myths, misconceptions, rumors, societal stigma, and traditional and religious beliefs all related to influence of social network and religious approval on the use of family planning, beyond the individual's beliefs (Ezenwaka et al., 2020; Ndayizigiye et al. 2017; Ochako et al., 2015; Silumbwe et al., 2018).

Similarly, students from households headed by the mother compared to those headed by the father (AOR= 2.25, 95%; CI: 1.75 - 6.79) and students who did not have opinion about the adequacy/number of service centers relative to those who agree (AOR= 4.83; CI: 1.60 - 14.62) were more likely to use

contraceptives. While, the positive association between a female household head and a student's contraceptive uptake may be related to the higher decision making possibility by the lone woman, the positive association between contraceptive uptake and being indifferent as regards the number and distribution of service giving health centers is not clear. The latter result is not in line with some studies which found positive association between contraceptive uptake and close proximity and equitably distributed service providing health facilities, as in, for example, another study by Shiferaw et al. (2017) for Ethiopia; Ochako et al. (2015) for Kenya; and Silumbwe et al. (2018) for Zambia.

On the other hand, students who did not obtain information from service providing workers compared to those who obtained from them (AOR= 0.62; CI: 0.36- 1.05) were less likely to get the service. Similarly, students who did not have opinion regarding whether they would not seek the service if providers were unfriendly (AOR= 0.04; CI: 0.01 - 0.3) and/or if the service is not confidential (AOR= 0.36; CI: 0.12 - 1.11) were less likely to use the service. The less likely uptake among those with indifferent opinion in the present paper appears to be unclear in light of studies for other countries, including a study by Biddlecom *et al.* (2007) for Burkina Faso, Ghana, Malawi and Uganda; by Ezenwaka et al. (2020) for Nigeria; and Silumbwe et al. (2018) for Zambia; who found less likely service uptake among respondents who perceive non-confidential service provision and unfriendly providers (shouting, insulting, etc). However, a less likely service uptake was also found among those respondents in the present study who preferred to get the service in the absence of other users (more privacy) relative to those who preferred to get it during regular service hours (AOR: 0.54; CI: 0.30, 0.97), a result which suggests provider friendliness and service confidentiality really matter, than is suggested by directly measuring unfriendliness and confidentiality. Other predictors of contraceptive use were not statistically significant, whether positive or negative.

Thematically, four variables are statistically significant from the individual level variables, one from household level variables and three from service providers' characteristics variables. None of the variables among the

sexuality characteristics themes had statistically significant relationship with contraceptive use whether positive or negative.

Table 5. Multivariate analysis of determinants of contraceptive utilization among sample students in selected HEIs in Addis Ababa, Oct. 2018

Variables			Contraceptive use	
			COR (C.I.)	AOR (C.I.)
Individual characteristics	Sex	Male	1.00	1.00
		Female	2.06(1.34, 3.20)***	1.84(1.11, 3.05)**
	Age	18	1.00	1.00
		>18	0.92(0.83, 1.03)	0.96(0.78, 1.17)
	University duration	Year I	1.00	1.00
		Year II	0.75(0.42, 1.37)	0.91(0.44, 1.87)
		Year III	0.85(0.48, 1.52)	1.31(0.59, 2.90)
		Year IV	0.49(0.21, 1.03)*	0.72(0.22, 2.42)
		Year V	1.29(0.62, 2.65)	2.45(0.76, 7.94)
	Department	Health	1.00	1.00
		Non health	0.98(0.64, 1.49)	1.01(0.58, 1.72)
	Religion	Orthodox	1.00	1.00
		Muslim	0.99(0.55,1.82)	0.85(0.43, 1.68)
		Protestant	0.83(0.47, 1.47)	0.86(0.46, 1.60)

	Catholic	0.57(0.16, 2.09)	0.50(0.12, 2.16)
	Others	1.29(0.44, 3.75)	1.39(0.38, 5.06)
Pocket Money	Yes	1.00	1.00
	No	0.28(0.09, 0.89)**	0.37(0.11, 1.32)
Knowledge of Contraceptive methods	Yes	1.00	1.00
	No	4.69(2.20, 10.12)***	5.89(2.60, 13.32)***
Source of information	Parents	1.15(0.69, 1.92)	0.93(0.48, 1.77)
	Teachers	0.66(0.40, 1.06)*	0.72(0.42, 1.23)
	Health workers	0.69(0.44, 1.08)	0.62(0.36, 1.05)*
	Friends	1.16(0.69, 1.97)	1.03(0.53, 2.03)
	Posters	1.17(0.56, 2.44)	1.52(0.62, 3.74)
	Mass media	0.94(0.61, 1.46)	1.01(0.59, 1.72)
	Social media	1.14(0.72, 1.83)	1.39(0.79, 2.47)
Users' preferred time of service	Regular time	1.00	1.00
	If no other users	0.54(0.32, 0.91)**	0.54(0.30, 0.97)**
	Any time	1.97(0.38, 10.16)	2.21(0.33, 14.84)

Household character characteristics	Father's education	Not read and write	1.00	1.00
		Primary school (1-8)	0.83(0.31, 2.26)	0.91(0.28, 2.95)
		Secondary school (9-10)	0.91(0.33, 2.50)	0.82(0.24, 2.84)
		Preparatory school (11-12)	0.98(0.41, 2.36)	1.68(0.54, 5.27)
		Certificate/Diploma	0.61(0.29, 1.30)	0.73(0.26, 2.06)
		Degree and above	1.28(0.64, 2.56)	1.54(0.53, 4.51)
	Father's occupation	Has no job	1.00	1.00
		Government employed	1.18(0.35, 4.02)	0.97(0.27, 3.49)
		Own business	1.00(0.30, 3.31)	1.09(0.31, 3.77)
		Farmer	1.64(0.42, 6.36)	1.76(0.38, 8.27)
	Household head ship	Father	1.00	1.00
		Mother	0.94(0.51, 1.71)	2.25(1.75, 6.79)**
		Both	0.68(0.41, 1.11)	0.69(0.36, 1.34)
Sexuality characteristics	Age at first sex	15-19	1.00	1.00
		20-24	0.36(0.08, 1.67)	0.23(0.03, 2.16)
	Type of contraceptiv	Pills and injection	1.00	1.00
		Emergency contraceptive	1.61(0.24, 10.90)	2.08(0.28, 15.54)

es usually used	Condom	0.50(0.11, 2.21)	0.39(0.07, 2.04)
	Withdrawal	3.22(0.25, 41.53)	5.11(0.22, 119.25)
Number of sexual partners at a time	One	1.00	1.00
	Two	1.65(0.39, 7.01)	1.62(0.26, 10.36)
	Three	1.72(0.32, 9.18)	0.68(0.06, 8.40)
	Four and above	1.10(0.21, 5.79)	1.20(0.14, 10.11)
Decision maker on contraceptive use	Myself	1.00	1.00
	My partner	2.22(0.51, 9.65)	0.97(0.14, 6.45)
	Joint decision	0.64(0.15, 2.66)	0.55(0.10, 2.91)
Service providers' characteristics	University type	Public(Ref)	1.00	1.00
		Private	0.74(0.47, 1.18)	0.78(0.48, 1.29)
	Adequacy (number) of service centers	Yes	1.00	1.00
		No	0.72(0.44, 1.19)	0.70(0.42, 1.17)
		Not sure	3.56(1.34, 9.51)**	4.83(1.60, 14.62)***
	Service is costly	Agree	1.00	1.00
		Neutral	16.62(5.29, 52.17)***	1.67(0.76, 3.68)
		Disagree	1.75(0.86, 3.59)	0.63(0.21, 1.86)
		Agree	1.00	1.00

Service uptake is unlikely if health worker is judgmental	Neutral	0.65(0.33, 1.29)	0.81(0.43, 1.50)
	Disagree	0.76(0.43, 1.32)	1.34(0.71, 2.54)
Service uptake is unlikely if service providers are unfriendly	Agree	1.00	1.00
	Neutral	0.20(0.04, 1.06)*	0.04(0.01, 0.30)***
	Disagree	1.58(0.70, 3.60)	0.67(0.26, 1.69)
Service uptake is unlikely if the service is not confidential	Agree	1.00	1.00
	Neutral	0.90(0.22, 3.55)	0.36(0.12, 1.11)*
	Disagree	1.57(0.53, 4.63)	1.94(0.43, 8.79)
Service uptake is unlikely if waiting time is too long	Agree	1.00	1.00
	Neutral	0.94(0.45, 1.97)	1.52(0.80, 2.90)
	Disagree	0.81(0.45, 1.48)	1.44(0.71, 2.89)

Source: Own Survey, 2018   **Note:** *P<0.10, **P<0.05, ***P<0.01

4. CONCLUSION

The purpose of this paper was to analyze the prevalence of and factors associated with contraceptives utilization among 354 randomly selected young students from two higher education institutions in Addis Ababa

We found nearly half of the respondents to have utilized contraceptives, which is comparable to results from other studies on a similar topic. Being female relative to male; not having contraceptive methods knowledge relative

to having; being from a woman-headed household; and not being sure about the adequacy/number of service centers relative to those who were sure are positively associated with the probability to use contraceptives. While the more likely contraceptive uptake among those who do not have contraceptive methods knowledge is counter intuitive, possible reasons could be shame, myths, misconceptions, rumors, societal stigma, and traditional and religious beliefs. All of these are related to influence of social network and religious approval on the use of family planning, beyond the individual's beliefs. Whereas, not obtaining information from service providing workers compared to obtaining from them; having no concern about service providing workers' friendliness and/or confidentiality compared to being concerned about it; and obtaining the service in the absence of other users relative to obtaining it in their presence were negatively associated with contraceptives uptake. Although the less likely contraceptive uptake is reported among those who are unsure about whether providers need to be friendly and the service be confidential, the less likely service uptake among those who preferred more privacy suggests provider friendliness and service confidentiality really matter.

Female students may be better used to influence their male counter parts. Similarly, service providing workers may be better used as good sources of information to boost contraceptives uptake. Further, given that young people in general and students in particular are highly sensitive and emotional, contraceptives uptake can be increased by minimizing barriers that hinder privacy, provider unfriendliness and service non-confidentiality. To address the lack of direct congruence between contraceptive methods knowledge and uptake, family planning programming including counseling may engage with behavioral change education focusing on minimizing myths, misconceptions, shame, rumors, societal stigma, and traditional beliefs. Future studies may further analyze the effects of the adequacy/number of contraceptive service providing centers.

Limitations

The authors understand that having access to contraceptives and contraceptive uptake do not necessarily translate to contraceptive use.

While contraceptive use is commonly measured using current use (with a reference period of two weeks' time), in this study, the outcome variable 'contraceptive utilisation' was measured using ever-visiting health services for contraceptive as an indicator.

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