

# BMJ Open

BMJ Open is committed to open peer review. As part of this commitment we make the peer review history of every article we publish publicly available.

When an article is published we post the peer reviewers' comments and the authors' responses online. We also post the versions of the paper that were used during peer review. These are the versions that the peer review comments apply to.

The versions of the paper that follow are the versions that were submitted during the peer review process. They are not the versions of record or the final published versions. They should not be cited or distributed as the published version of this manuscript.

BMJ Open is an open access journal and the full, final, typeset and author-corrected version of record of the manuscript is available on our site with no access controls, subscription charges or pay-per-view fees (<http://bmjopen.bmj.com>).

If you have any questions on BMJ Open's open peer review process please email [info.bmjopen@bmj.com](mailto:info.bmjopen@bmj.com)

# BMJ Open

## Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia: Formative qualitative study.

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-060582
Article Type:	Original research
Date Submitted by the Author:	28-Dec-2021
Complete List of Authors:	Wondimagegne, Yohanness; Dilla Health Science and Referral Hospital, ; Debelew, Gurmesa Tura; Jimma University, Birhanu, Zewdie ; Jimma University, Health, behavior and Society
Keywords:	PUBLIC HEALTH, REPRODUCTIVE MEDICINE, MEDICAL EDUCATION & TRAINING

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1  
2  
3 **Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia:**  
4 **Formative qualitative study.**  
5  
6  
7  
8  
9  
10  
11  
12

13 Yohannes Addisu<sup>1\*</sup>, Gurmesa Tura<sup>3</sup>, Zewdie Birhanu<sup>2</sup>  
14  
15  
16  
17  
18  
19

20 Correspondence to Mr Yohannes Addisu; [yohannes\\_24@yahoo.com](mailto:yohannes_24@yahoo.com)  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## Abstract

**Objective:** To assess barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia in 2021.

**Design:** A grounded theory approach of the qualitative study was conducted between December 2020 and April 2021 in Gedeo Zone, South Ethiopia.

**Setting:** The study was conducted, in two urban schools and four rural schools, in Gedeo Zone, South Ethiopia.

**Participants:** A total of 42 in-depth interviews were conducted with-school girls, school counselors, Kebele Youth association coordinators, Zonal child, adolescent and Youth officer, health workers and Non-Governmental Organization workers.

**Results:** The findings of the study were organized into four major themes that explore contraceptive use barriers; these include; Individual related barriers such as knowledge, fear, perceptions, and psychosocial development. Community-related barriers, which encompass unpleasant rumors, family-related barriers, norms, Economic Vulnerability, and socio-cultural and religious beliefs. Health facility-related barriers such as the arrangement of health services, and health workers behavior. Finally, a weak multi-sectorial related barrier was identified.

**Conclusions:** Adolescents' contraceptive use was affected by a variety of barriers ranging from the individual level up to inter-sectorial level barriers. The findings suggested that there is a need to design health education programs, such as peer education programs, and conduct social and behavioral change communication interventions to create contraceptive demand and enhance utilization.

**Keywords:** Contraceptive; peer education; adolescent; schools; Ethiopia.

### Strength and limitation of the study

We applied an elicitation study to identify silent belief for questionnaire formulation and record review to see the experience of adolescent contraceptive behavior.

The study exclude adolescent whose age is 10-14 Years.

The study excludes male students' contraceptive use behavior.

It exclusively considers adolescents who are still in school.

Because of the delicate nature of the subject, focus group discussions are not used.

For peer review only

## Background

Global developmental goals and strategies have recognized the importance of adolescents' health and rights [1-3]. Universal access to sexual and reproductive health services and rights by 2030, including contraceptive utilization, is a priority global agenda for sustainable development[4]. Currently, the largest-ever group of young people in history becoming sexually active, and therefore need contraceptive utilization [5]. On the other hand, adolescents' sexual and reproductive health (SRH) needs remain largely unmet globally[6]. Access to SRH information determines the burden of adolescent pregnancies and unwanted pregnancies [7]. Worldwide, about 15% of unsafe abortions occur among girls under the age of 20 years annually. Early pregnancy and childbearing typically denote the end of formal education, early marriage, and restrict opportunities for employment[8]. SRH issues, including unwanted pregnancies, remain a significant public concern in sub-Saharan Africa [9].

Approximately 85 percent of sexually active adolescent girls who do not want to become pregnant do not use modern contraception [10]. In most parts of the developing world, unmarried, sexually active adolescents who are not in a formal partnership require contraception, which is often unrecognized; additionally, this population faces stigma and social condemnation if they are forced to use it [11] [12]. As a result, they are easily exposed to undesirable health and socioeconomic consequences such as induced/unsafe abortion, high fertility, obstructed labor and its complications such as obstetric fistula, and hypertensive disorders of pregnancy [13].

Studies showed that about forty percent of girls reported that they had difficulties in discussing sexual issues with their mother due to fear and shyness [13, 14]. The importance of reproductive health education at school has been acknowledged in the sustainable development goals agenda so as to ensure that the necessary knowledge and skills in this area acquired by all learners [15]. Schools are an appropriate setting in which to contribute to the development of healthy sexuality [16].

Since students spend a considerable amount of time with the school, it is easier to implement peer education as a part of teaching activity [11]. Peer education is often used to affect change at individual level by attempting to modify a person's knowledge, attitudes, beliefs, or behaviors. Mostly, information is available to an adolescent but it may be given in a manner that is

1  
2  
3 authoritarian, judgmental, or non-adapted to the young people's values, viewpoints and  
4 lifestyle[17]. One effective way of dealing with these issues is peer education, because it is a  
5 dialogue between equals. For effective implementation of peer education , the concerns, gaps and  
6 expectations, needs to be well understood[15]. However, there is no study done yet on this  
7 regard, therefore this study assesses barrier to contraceptive use as a baseline for designing and  
8 evaluating the effectiveness of school based peer-led education intervention in Gedeo Zone,  
9 South Ethiopia.  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

For peer review only



## Methods and Materials

### Study Setting and Period

The study was conducted in Gedeo Zone. Gedeo Zone is located in the Southern part of Ethiopia with a population of 1,651,000 and a total household of 336,804. This makes it the most densely populated Zone in the Southern Region, Ethiopia. Currently, hosting a large population density of over 1300 people per km<sup>2</sup>. Dilla is the capital town for the Gedeo Zone and it is located 362 km from Addis Ababa, the capital city of Ethiopia. There are seven senior secondary schools in the Zone with a total of 24,445 students attending the schools during the time of the study [18].

The study was conducted from December 2, 2020–February 29, 2021.

### Study Design

The researchers used a ground theory approach to better understand the barriers that tackle contraceptive demand and utilization behavior among high school students in Gedeo Zone. Grounded theory was chosen because it is the most effective method for developing important data and themes inductively based on systematically obtained and analyzed data [27].

### Population and sampling

The study population was made up of carefully selected students (who could actively engage in the school) who attended the assigned schools during the study period. Students were recruited from a variety of grade and schools. Gender and residence (rural vs. urban) were also considered in the selection process. In addition, health care experts from a variety of fields (Health extension workers (HEWs), nurses, Public health officers, and Midwives) and psychologists were included. Overall, the participants and data sources were chosen in stages to achieve the purpose of saturating ideas about contraceptive use barrier. Theoretical sampling (collecting and coding data at the same time to determine what data to collect next) was used to construct category and thematic.

### Patient and Public Involvement

Patients and/or the public were not involved in this study.

### Data collection methods and procedures

Data was gathered through in-depth interviews, and key informant interviews with students, and health care professionals. Prior to the start of data collection, the selected schools and health facilities were contacted to obtain permission to conduct the study. Only at the time of the interview were participants in the study contacted. All of the interviews and conversations took place in schools and health care settings, and no one else was present at the room during

1  
2  
3 interview except the participants and data collectors. The interview guide aided the interviews.  
4 All interviews (which lasted between 30 and 91 minutes) were recorded using a digital voice  
5 recorder, and notes were taken during each topic and interview. The saturation of ideas  
6 determined the size of the interviewee. In the current context, barrier refer to anything that is  
7 regarded as obstacle that prohibit contraceptive utilization.  
8  
9

### 10 11 12 **In-depth interviews with patients**

13  
14 In-depth interviews were conducted with a total of 14 students from the six schools included in  
15 the study. Students were sampled to ensure diversity in age (ranged from 15 to 19 years), sex (11  
16 females and 3 males), and diverse grade level which included (Range from grade ninth to  
17 twelve), and from social and natural science stream. The interviews were conducted by  
18 investigators in Amharic language and transcribed verbatim to English. The interviews were  
19 conducted in a private setting to ensure the privacy and comfort of the students.  
20  
21

### 22 23 24 **Key informant interviews-KII (in-depth interview with health staff)**

25  
26 To triangulate the findings of interviews from students, a total of 28 key informants (mostly  
27 health workers) were interviewed with purposively selected staff, at least three informants from  
28 each health facility. Consequently, diverse groups of health care providers including community  
29 health workers (CHWs), nurses, public health officers, midwives and psychologist were included  
30 in the key informant interviews. To ensure the diversity of experience, health care providers were  
31 also purposively selected considering the durations of their experiences.  
32  
33

### 34 35 36 **Data analysis**

37  
38 The data from the interviews were transcribed verbatim and then translated into English for  
39 analysis. ATLAS.ti 7.1.4 aided in the coding and further analysis of the data. Investigators read  
40 and reread the transcripts before assigning codes (open coding) and developing an initial coding  
41 structure. To ensure that the coding structure was relevant and appropriate, one coder performed  
42 iterative rounds of open coding on selected transcripts guided by the grounded theory approach,  
43 while the second coder reviewed and verified the emergent codes. Finally, the study team  
44 analyzed the coded transcripts and generated codes to come to an agreement on the coding  
45 system and code definitions that would be utilized to code all transcripts. The findings were  
46 categorized into themes and sub-themes based on important quotes. Then after students' barriers  
47 to use contraceptive was described using the key themes and sub-themes that arose. Peer  
48 debriefings with the research team were held to help with interpretation. For reporting qualitative  
49  
50  
51  
52  
53  
54  
55  
56  
57

1  
2  
3 findings, this study adheres to the consolidated Criteria for Reporting Qualitative Research  
4 (COREQ) standard protocol[19].  
5  
6

## 7 **Trustworthiness**

8 In order to maintain the credibility of the study based on the Lincoln and Guba criteria, various  
9 strategies were used to ensure trustworthiness[20]. At the beginning, the data collection tool  
10 (interview guide) was pre-tested on two KII and one IDIs Specifically, KII was conducted with  
11 health personnel trained on Youth friendly service and IDIs was conducted with female  
12 preparatory student. To set up trustworthiness a studies assistant and the studies crew engaged in  
13 peer debriefing. Following a dialogue with corporations of principal investigators, the tool  
14 became modified. To diversify the study participants, the adolescent interviewees and key  
15 informants were recruited based on a socio-economic characteristic (gender, age, education level,  
16 and occupation) in order to get a broader range of perspectives from various participants.  
17  
18

19 A summary of significant themes was presented to study participants at the end of each data  
20 collecting period, and a discussion was held to avoid any confusing matters. To ensure member  
21 checking, the transcription and translation were given, as well as a synopsis of key themes and  
22 some perplexing concepts, so that they could check the interpretations and offer their comments,  
23 critiques, explanation, and confirmation. The study's final conclusion was shared with all study  
24 participants to ensure that their ideas were appropriately reflected. Prolonged engagement, which  
25 has been obtained by staying in the research area for an extended period, was done. The  
26 principal investigator verified the points mentioned in the IDIs and KIIs through this time. He  
27 observed and confirmed various concerns such as the public's impression of contraception,  
28 misconception about contraceptives, rumors about contraception, and health professionals'  
29 attitudes regarding adolescent contraception use, and existing Socio-cultural expectation and  
30 norms about contraceptive use of adolescent were observed. In order to ensure transferability, the  
31 entire research process, participant's different viewpoints and experiences, methods,  
32 interpretation of results, and contributions of research assistants were all thickly described.  
33 Purposive sampling and a reflective journal have also been used. Self, method, daily schedule,  
34 and personal reflection are all clearly documented. Participants who contribute to the findings,  
35 interpretations, and recommendations ensure dependability. The findings of this study have been  
36 audited and confirmed with the aid of advisors, colleagues and different individual who are  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 familiar with qualitative research. The findings have been correspondingly verified with the aid  
4 key informants like Health workers, school counselor, student and teachers. Furthermore, every  
5 procedure become documented and audio data and made to be had to look auditor researchers for  
6 cross-checking.  
7  
8  
9

### 10 **Ethical Consideration**

11 Ethical approval of this study was obtained from the Institutional Review Board (IRB) of Jimma  
12 University (Ref. No. IHRPG938/5/11/2020), and a permission letter was obtained from the Zonal  
13 health bureau, Dilla town administrator, and school directors. Written informed consent and  
14 parental/guardians consent for participants were secured from all study participants. After  
15 informed consent was sought from each of the adolescents and their parents, the data was  
16 collected in a separate location to protect the privacy of the participants.  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## Result

### Participants' demographic profile

There were a total of forty two participants involved in this study. Majority of the study participant was protestant in religion followed by orthodox Christian.

All invited participants successfully participated in this current study. In-depth interviews were conducted with 14 students (Range from grade ninth to twelve). The students' ages ranged from 15 to 19 years old (Average 17.2). In addition, 28 professionals (Most health professionals) with diverse professional and career backgrounds participated in the in-depth interview (10 CHWs, 4 Nurses, 4 public health officers, 7 midwives, 1 health promoters assigned by Non-Governmental Organization clinic, and 2 psychologists).

### **Themes and Category related with the study**

In this study, four themes were identified which are personal factors, Community related barriers, Health Service barriers and Multi-sectorial related factors [Table 1].

<b>Major themes</b>	<b>Categories</b>
Individual related barriers	Knowledge
	Fear
	Misconception
	Psychosocial development
Community related barriers	Unpleasant rumors
	Family pressure
	Social norms
	Economical vulnerability
	Socio-cultural and religious beliefs
Health Service barriers	Health service arrangement
	Health workers behavior
Multi-sectorial related factors	Weak multi-sectorial collaboration

**Table 1. An emergent themes and categories of barriers to contraceptive use in the school set up, in the study contexts, Gedeo Zone, Ethiopia, November 2021.** barriers to contraceptive use, namely Individual related barriers, community-related barriers, Health Service barriers , and Multi-sectorial related factors, that encompass several specific aspects within each main theme, including a barrier to Knowledge, fear, rumors, health worker behavior and weak Multi-sectorial collaboration. The details of the major contraceptive barrier with sub-categories were described below.

#### **Individual related barriers**

According to the current study, Individual related barriers were a specific background of the study population that can impact functioning contraceptive use either positively or negatively such as knowledge, fear, misconceptions, and psycho-social development.

#### **Knowledge**

In this study, one of the person-related barriers that influenced adolescents' contraceptive use was knowledge. The majority of key informant stated that students had limited knowledge of contraception due to a lack of opportunities to learn about reproductive health.

They also mentioned that some students, particularly those who live in rural areas, are unaware of the availability of contraceptive services.

*Usually adolescents do not relate the sexual practice with a pregnancy they do not plan to use contraceptives proactively before pregnancy happen because of a lack of knowledge on contraceptive methods. - (KII, Health worker).*

### **Fear related to contraceptive use**

Under the individual-related barrier, one category was fear of contraception use. Fear was indicated by nearly all categories of study participants as a key barrier to utilizing contraception. As they mentioned, students are afraid of their family, friends, Health workers, and contraceptive side effects.

**Fear of being judged by family and friends:** students are afraid of being judged by their parents and friends if they take contraceptives like the Implanon or oral tablets. If they find out she uses contraception, they gossip about her and discriminates against her, according to the key informant participant. Furthermore, everyone regards that girl as a nasty girl. They also mentioned that, students are afraid of not just their parents and peers, but also their relationships, because they may end up in a quarrel with their partner if they refuse to use contraceptives like condoms, and they are obliged to accept risky traditional techniques like withdrawal.

*When I use hormonal contraceptives like depo and Implanon, it causes menstrual irregularity and spotting, and I'm afraid that my parents will find out and question why my menstruation has become irregular. -19 year- old Student (IDI)*

**Fear of Health workers:** Furthermore, particularly, key informant participant explained that students are afraid of health professionals when they go to the health care provider since most of them are unpleasant, judgmental, and may divulge information to their parents. They even deny having sex until a laboratory test confirms that they are pregnant because they are afraid of the health worker.

*By the way, I've never seen an adolescent come straight to the health center and ask for contraceptives because they are afraid that even those that come to health facilities will have difficulties articulating and shaking to ask for contraceptive services. - (KII, Health worker).*



1  
2  
3 **Fear of side effects:** Finally, both categories of study participants indicated that students are  
4 afraid about infertility if they use hormonal contraceptives. Furthermore, many are concerned  
5 that it would alter their body's appearance, making them too thin or too obese, as well as induce  
6 menstruation irregularities.  
7  
8  
9

10  
11 *I understand that contraceptives protect me from unplanned pregnancy for the time being, but I*  
12 *am concerned that when I marry, I will not be able to have children. -17 year- old Student (IDI).*  
13

### 14 **Misconceptions**

15  
16  
17 The study indicated that, a variety of misunderstandings concerning contraceptive use were  
18 investigated. According to both categories of participants, adolescents are not allowed to take  
19 contraception until they are adults and married. A student who uses contraception is regarded as  
20 a deviant. Similarly, concepts such as considering only condoms and post-pill as appropriate  
21 contraceptives used before marriage; having sex with a wide interval period does not expose to  
22 pregnancy; connecting condoms only with the prevention of sexually transmitted diseases such  
23 as HIV/AIDS rather than as a contraceptive; pregnancy could not happen again to someone who  
24 had a history of terminating the pregnancy, and perceiving use of medical abortion and post-pill  
25 redundantly as a normal thing Furthermore, taking a hormonal contraception such as depo  
26 exposes them to infertility, and that once a long-acting contraceptive has been used, they believe  
27 it is impossible to remove it whenever they wish to have a child.  
28  
29  
30  
31  
32  
33  
34  
35  
36

37 *I don't use birth control. My reasoning is that, as a student and single woman, I believe no one*  
38 *has ever authorized me to use contraception. -17 year- old Student (IDI).*  
39

### 40 **Another participant mentions that**

41  
42 *I went two years without using contraception when I wasn't pregnant, but then I became*  
43 *pregnant without it. I believe that once I started using it, it would always protect me. -19 year-*  
44 *old Student (IDI)*  
45

### 46 **Psychosocial development**

47  
48 One variable identified as an individual label barrier in the current investigation was  
49 psychosocial development and contraceptive use. Some key informants mentioned that, students  
50 at this age are impulsive and want to try everything. They lose control when craving sex and  
51 become pregnant without realizing it. These studies revealed that because adolescents do not  
52 have regular sexual interaction, they proceed to sex by mistake before planning to use  
53  
54  
55  
56  
57  
58  
59  
60



1  
2  
3 contraception. Unwanted pregnancy is a good indicator that this population should begin using  
4 contraception.  
5

6 Furthermore, most adolescent victims of abduction and sexual assault, According to key  
7 informants, students are not unable to form a stable relationship owing to their mental  
8 development and age, and hence do not intend to use contraception prior to sexual intercourse.  
9

10 Adolescent do not want to take contraceptive measures on a regular basis, but want to go to  
11 health institutions regularly for abortion or emergency contraception, and return to the cycle  
12 again and again. Furthermore, the key informant interviewer stated that teens do not want to  
13 attend contraception teaching. The reason for this was that they considered it was only an adult  
14 or married person's concern, or they gossiped and had fun during the school discussion on  
15 reproductive health, or they felt shame or humiliated at home because they feared their parents.  
16

17 *Adolescents at this age abuse sexually and have no intention of using contraception since they*  
18 *are exposed to sexual activity hastily or unknowingly. - (KII, Health worker).*  
19

### 20 **Theme: Community related barriers**

21 The second theme revealed in the current study was community-related barriers; under this  
22 theme, the categories identified were unpleasant rumors, Pressure from family, norms, religion,  
23 and economic vulnerability.  
24

#### 25 **Unpleasant rumors**

26 Both students and health professionals reported that there were many rumors in the community  
27 that prohibited contraceptive use, such as if an adolescent goes to a health center and they  
28 suspect she is going to get an abortion or contraceptive, then there may be a rumor that Mr. x's  
29 daughter is using contraceptive and everyone thinks she is a deviant, and on the other hand if one  
30 woman experiences weight loss after using contraceptive, she advocates for all women around  
31 her to not use that contraceptive. The same can be said about other rumors such as, 'If a woman  
32 inserts IUCD into her uterus, it bursts out and jumps to her brain, causing major damage.' The  
33 other rumor was about Implanon, which was 'when we take implanon, it disappears within the  
34 flash and inside the body'. The other rumor was about infertility, 'contraceptive use exposes  
35 adolescents to infertility in the future when they get married'.  
36

37 Furthermore, the health professionals stated that because the public mind is already preoccupied  
38 with rumors, if they experience any problems after using contraception, they instantly associate it  
39 with contraception and request its removal or discontinue use.  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50

1  
2  
3 *When my mother and our next-door neighbor discuss about contraception, they almost always*  
4 *grumble about it. According to what I recall from their conversation, women who have*  
5 *contraception injected into their arms become sterile for the rest of their lives. -16 year- old*  
6 *Student (IDI).*  
7

### 8 **Pressure from family**

9  
10 According to the current finding family put high pressure on adolescent to not use contraceptive  
11 even if they have intention to use. Reflections from all categories of participants indicated  
12 adolescent fear to take implanon and daily pill since it can be observable by family.  
13

14 Adolescents are terrified of using Implanon and daily pills, because they will be noticed by their  
15 families. Moreover, they don't even want to take Clint's card home with them. Both students and  
16 health professionals claimed that most adolescents use depo due to family pressure because it is  
17 not feasible for anyone. With the exception of a few families, families are generally resistant, and  
18 they do not suspect that their children are exposed to sexual practices, so they do not discuss  
19 contraception or allow health professionals to teach them.  
20

21 Furthermore, the health professionals explained that families believe that discussing  
22 contraception encourages their children to use contraception or implies that it allows them to  
23 conduct sex indirectly. Students ascertained that, the family has followed up to see if their  
24 menstruation has arrived or not, and if there is an irregularity, they have inquired as to why this  
25 is happening. As a result, they provide unnecessary negative reinforcement.  
26

27 *My mother never discusses contraception with me because she is unaware of it. I usually discuss*  
28 *contraception with my sisters, and my parents simply tell me to abstain. -17 year- old Student*  
29 *(IDI)*  
30

### 31 **Another participant also mentioned that**

32 *Because they (adolescent) are afraid of their families, the majority of adolescents who receive*  
33 *contraception from our facility choose to leave their card with us rather than take it home. In*  
34 *some cases, we simply call to remind them when their schedule is due. - (KII, Health worker).*  
35

### 36 **Social Norms**

37  
38 Another issue related to the community-level barrier to contraception use was the norm.  
39 According to the majority of health personal, adolescents seeking contraception face cultural  
40 challenges. It is embarrassing for them to use contraception because they are young, single, and  
41 live with family.  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

Both category of participant mentioned that, the community's attitude toward students who used contraception was negative. As a result, they forbid their children from being friends with girls who use contraception. Study participants also stated that because the community places a strong value and norm on maintaining virginity until marriage, students who become pregnant before marriage face severe stigma and discrimination from the community because they violate the culture and norm, and as a result, some victims commit suicide.

*The community believes that students who live with their families and use contraception to be deviant or unique. -18 year- old Student (IDI)*

### **Economical Vulnerability**

As reflections from psychologist and health personnel participants indicated, some adolescents may not use contraception on purpose in order to become pregnant as a means of securing their relationship if their partner has a job with a good wage. Furthermore, adolescents whose parents are impoverished or deceased may engage in a variety of activities to generate income to support themselves and other family members. This condition may expose them to sexual abuse and unintentional sex without planning to use contraception.

*I know an orphan female student who sells coffee on the street who was sexually molested and became pregnant, so she come to the health post and asked me to give her a post-partum tablet. - (KII, Health worker).*

### **Socio-cultural and religious beliefs**

Religious beliefs, according to both kind study participants, are a barrier to contraceptive use since practically everyone in the study area values socio-cultural and religious beliefs and advocates for abstinence before marriage and views contraception as a bad thing.

Adolescents who desire contraception before marriage are regarded as sinful and repulsive, according to both kind study participants. It assumed that every adolescent should be a role model for others, and using contraception at such a young age is a sign of a bad girl and a sin in God's eyes.

*Everyone in the community looks up to one student who has a really good attitude and is regarded as a role model. She becomes pregnant unexpectedly, and she attempts suicide because she is too humiliated and ashamed to seek emergency contraception. -19 Years, female student).*

### **Theme: Health facility-related barriers**

The Health facility-related barriers divided into two categories: Weak health Service arrangement, and health worker behavior.

### **Weak health Service arrangement**

The health care providers ascertained that, health centers lack a structured approach to serving students' sexual and reproductive health needs. Family planning is provided to all age groups within the maternity and child health department (MCH) without segmentation.

Moreover; adolescent have no any clue where they can find contraceptive after they arrive to health facilities. There is also a lack of a fluid pass-on framework that allows adolescent reproductive health services to be transferred easily from health posts, schools, and non-governmental organizations to focal Youth-friendly services (YFS) or health facilities.

Furthermore, according to the health personnel report, in most health centers, obtaining a card from the card room is required in order to obtain any health service, including family planning, which involves bureaucracy such as standing in a lengthy line in the corridor and so on.

In addition, healthcare facility personnel believe that the student is unfit for family planning services, so they confront the student in some way to avoid receiving the service that they demand. the number YFS available in the study area is extremely limited; it is not integrated with existing primary and referral care systems such as schools, and health posts; and it does not address the growing contraceptive demand of adolescents. Even, the few available YFS is not branded by a student as being YFS as well as it is not well communicated yet most adolescents do not know where it is located and what kind of service it delivers.

*One of the most crucial services for addressing adolescent reproductive health is youth friendly service; however it is the most overlooked indicators for me. - (KII, Health worker).*

### **Health workers behavior**

Critical masses of health care personnel are not well equipped to serve adolescents, according to the adolescents and key informants. The study participants reported that health professionals' approaches are not uniform, that untrained professionals on YFS treat adolescents in an unfriendly manner, with judgmental and disapproving attitudes when they seek contraception, as a result, adolescents want to leave the health center as soon as they take contraception or without it. According to the youth and key informants, critical masses of health care personnel are not well equipped to serve adolescents.

*Counseling should be friendly; if we treat students like family, they will open up and tell us everything about themselves without fear; additionally, a positive approach and counseling will increase contraceptive use compliance. - (KII, Health worker).*

### **Another participant also mentioned that**

*We need more human resources because, despite working on 16 packages of health extension programs, we do not apply our efforts to adolescent reproductive health as boldly as we do to maternity, child, and immunization health. - (KII, Health worker).*

**Theme: Inter-sectorial collaboration**

Significant number of respondents (health workers) in the current finding showed that lack of inter-sectorial collaboration as one major theme identified in this study. Adolescent reproductive health expose to weak multi-sectorial collaboration and low stakeholder involvement. Contraceptive usage services for adolescents are provided in a fragmented and non-standardized manner across organizations. Even if they serve the same group and have similar goals, they function separately.

Furthermore, the study participant stated that community health care facilities are not providing the necessary leadership and information management system to assist students in forming synergistic actions with other sectors such as school, sports, and youth affairs, youth and women associations, media, and nongovernmental organizations. Furthermore, school-based continuous education, in which health experts are invited and participate in peer educator training and delivery, has yet to be implemented. Similarly, student reproductive health is not addressed in school mini media.

*There is a shaky framework connecting the Health Center with the school and other sectors to promote adolescent reproductive health. - (KII, Health worker).*

## Discussion

This study measured students' contraceptive usage barriers as a baseline for designing and evaluating effectiveness of peer-led education intervention in Gedeo Zone secondary School, South Ethiopia. Accordingly, the study showed that students have multiple barriers to contraceptive use, namely; Individual related barriers, community-related barriers, Health Service barriers, and Multi-sectorial related factors.

Low knowledge about contraceptive use was shown to be among the most significant barrier to its use in this study. Lower knowledge is one of the characteristics that restrict contraceptive use, according to other research from Ethiopia, Zimbabwe, and Tanzania [21],[22-27].

The lack of reproductive health education at school was the cause of students' lack of knowledge. This indicates that a health communication strategy should be developed and school-based awareness-raising actions should be implemented. Furthermore, student reproductive health interventions need to receive adequate attention in school mini media and other school clubs activities, the establishment and expansion of Peer education interventions through group discussion, question and answer competitions, as well as linking students with health facilities and YFS through peer educators can help students to gain a better understanding of contraceptive method and significantly improve their knowledge. According to current study, fear is one of the biggest obstacles to contraception for students. This was supported by a study conducted in rural Ghana[28]. Some students often deny having had sexual intercourse when asked by health professionals, which means that contraception may not be used. As a result, the intervention should include messages encouraging adolescents to make their own decisions about whether to be sexually active and which contraception to use.

Adolescents face serious challenges and negative enhancements from their important others [parents, religious leaders, health care workers] in both contraceptive use and discussion. This finding is similar to a study conducted in Zimbabwe and Nigeria[11] [12]. Teachers may also shy away from providing sexual and reproductive health content, as they themselves do not feel comfortable talking about and teaching the material[28]. Adolescent boys often see contraceptive use as the girl's responsibility[28]. Thus, adolescents' girls' peer-to-peer education, which is a discussion between equals, could be a way to break through this barrier. The student may feel more comfortable in discussing their feelings and sharing taboo topics with their peer educator



1  
2  
3 without fear, timidity, and embracing. In addition, in the current studies, one barrier to use  
4 contraceptives was psychosocial development. This finding is supported by studies conducted in  
5 Zimbabwe[22], as adolescents are immature and have reduced impulse control and are less able  
6 to plan and use contraceptives than adults.  
7  
8  
9

10  
11 Usually, this group is a neglected group. Even if they are exposed to sexual practice, which  
12 eventually lead to unintended pregnancy, miscarriage and many other problems, existing medical  
13 institutions do not consider them normal to use contraceptives [29]. Furthermore, their skills in  
14 contraceptive use, negotiation, and relationships are not fully developed[30]. The intervention in  
15 the form of a prototype audience, a group discussion by bringing up a specific scenario of a  
16 metaphor with a colleague, makes the stated gap smoother. In this study, students believe that  
17 contraception is only available to adults who are married, and that the only contraception  
18 available to adolescents is the post-pill and condom, which is similar to a study done in  
19 Zimbabwe[22].  
20  
21  
22  
23  
24  
25

26  
27 As a result, adolescents who use contraceptives such as depo and long acting reversible  
28 contraceptive(LARCs) are seen as unique and deviant, and they associate those who use these  
29 contraceptives with promiscuity and straying, which is similar to research conducted in Thailand  
30 and Kenya [31, 32]. Furthermore, adolescents have a very negative attitude toward the use of  
31 contraception in general, and LARCs in particular, despite the fact that they are safe, effective,  
32 inexpensive, and reversible, require little to no maintenance, and have much higher compliance  
33 rates than other hormonal methods[33]. As a result, intervention in the form of drama and poetry  
34 should be designed to influence such attitudes. Furthermore, the student believes that Depo-  
35 Provera causes infertility as the study conducted in Guinea, Thailand, and Ethiopia [9, 31, 34]  
36 proves this finding, which is not true: yes, Depo-Provera thickens the uterus wall and may delay  
37 pregnancy, but it does not entirely eliminate the possibility of pregnancy. Students, on the other  
38 hand, prefer emergency tablets since they are easy to ingest and readily available; However, a  
39 case study in India [35] shows that frequent use of emergency contraception has significant  
40 negative health impact, including ectopic pregnancy. Similar to this, just as it is relatively easy to  
41 terminate a pregnancy after the initiation of medical abortion, this phenomenon has its own  
42 contribution as a barrier to contraceptive use.  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 As a result, we must address these misconceptions through drama, poetry, and key message  
4 preparation and reading to students during morning flag hour or before or after drama portrayal  
5 and other sessions. The current study discovered that there are numerous rumors that are already  
6 embedded in the community's mind and may act as a barrier to contraceptive use, which is  
7 consistent with research conducted in Kenya, Ghana, and India [9, 31, 36].  
8  
9

10  
11  
12 According to this study, rumors such as IUCD bursts and jumps to the brain and Depo-Provera  
13 causes' infertility are among others. It should be noted that not all methods are suitable for all  
14 adolescents. In addition, it implies that we should address each rumor in a different way, such as  
15 through drama, poetry, role play, and individual or group counseling.  
16  
17

18  
19 Furthermore, similar to research conducted in Ethiopia, Guinea, and Bangladesh[9, 24, 37, 38],  
20 this study discovered that adolescents lack support and positive reinforcement from their  
21 families, health care providers, and teachers in order to use the contraceptive of their choice.  
22  
23

24 As a result, they require a one-of-a-kind approach, such as peer education, to support and resist  
25 such pressure from significant others.  
26  
27

28 In this study, there is a community norm, socio-cultural expectations, and contradictions that  
29 prohibit contraceptive use among the study population. Because the community has a strong  
30 value on preserving virginity until marriage, it is difficult to teach about contraception through  
31 community channels like community dialogue which similar to a study conducted in Nicaraguan  
32 and low-and middle-income countries [39, 40]. As a result, we must consider several alternatives  
33 to community-level intention, such as school intervention, which is free of religious leaders,  
34 community members, and parental pressure.  
35  
36

37 Finally, this study highlights the lack of adolescent contraceptive capacity building across many  
38 sectors, including health workers from health care facilities, school instructors and peer  
39 educators from schools and communities, supported by research from Guinea, northern Ethiopia,  
40 Ghana and Bangladesh [9, 24, 37, 38]. As a result, multi-sectorial collaboration and involvement  
41 can help to overcome this obstacle and increase uptake of contraceptive use.  
42  
43  
44  
45  
46  
47

48  
49 **Implications,** The current study shows that adolescents should have services that are integrated  
50 with other sectors, such as schools and youth organizations, social welfare, and the media.  
51

52 Furthermore, enhancing capacity building and working with an organization that works on this  
53 target population is very necessary. It is important to list and identify the major barrier to  
54  
55  
56  
57



1  
2  
3 contraceptives by adolescent and then devise a strategy to address this barrier through peer  
4 education.  
5

## 6 **Conclusion**

7  
8 Adolescents' contraceptive use was affected by a variety of barriers ranging from the individual  
9 level up to inter-sectorial level barriers. Many students don't use contraception, and as a result,  
10 they are vulnerable to unintended pregnancy, abortion, and a variety of other health issues that  
11 can lead to death. Moreover, there is no designed strategy that addresses adolescent  
12 contraceptive use at the school level; thus, the current study concludes that peer education is the  
13 best approach to address contraception demand and utilization behavior.  
14  
15  
16  
17  
18  
19

## 20 **Author affiliations**

21  
22 <sup>1\*</sup> Department of Health, Behavior and Society, College of Health Sciences and Medicine, Dilla  
23 University, Dilla, Ethiopia.

24 <sup>2</sup>Department of Health, Behavior and Society, Institute of Health, Jimma University, Jimma,  
25 Ethiopia.

26 <sup>3</sup>Department of Population and Family Health, Institute of Health, Jimma University, Jimma,  
27 Ethiopia.  
28

29 **Acknowledgements** The authors would like to acknowledge the Institute of Health, Jimma  
30 University and Dilla University for funding the study. The authors are also grateful to the study  
31 participants for their dedicated time and volunteer participation.

32 **Contributors** YA was involved in the conception, design, data collection and analyses; wrote  
33 the draft of the paper. ZB and GT were involved in the design and analyses. All authors were  
34 involved in report writing and interpretation; reviewed the study and drafts of the manuscript;  
35 and read and approved the final manuscript and agreed for submission.  
36

37 **Funding** The study was funded by Jimma University, Institute of Health and Dilla University.

38 **Competing interests** none declared.

39 **Patient consent for publication** Not required

40 **Ethics approval** Ethical approval was obtained from Institutional Review Board of Jimma  
41 University (Ref. No. IHRPG995/20/11/2020).  
42

43 **Provenance and peer review** Not commissioned; externally peer reviewed.  
44

45 **Data availability statement** Data are available upon reasonable request  
46

## 47 **Reference**

- 48  
49  
50 1. Kuruvilla, S., et al., *The Global strategy for women's, children's and adolescents' health (2016–*  
51 *2030): a roadmap based on evidence and country experience*. 2016. **94**(5): p. 398.  
52 2. Nations, U.J.N.Y.U.N., Department of Economic and S. Affairs, *Transforming our world: The 2030*  
53 *agenda for sustainable development*. 2015.  
54 3. Sheehan, P., et al., *Building the foundations for sustainable development: a case for global*  
55 *investment in the capabilities of adolescents*. 2017. **390**(10104): p. 1792-1806.  
56  
57  
58  
59  
60

4. Bolyen, E., et al., *Reproducible, interactive, scalable and extensible microbiome data science using QIIME 2*. 2019. **37**(8): p. 852-857.
5. Braeken, D., I.J.I.J.o.G. Rondinelli, and Obstetrics, *Sexual and reproductive health needs of young people: matching needs with systems*. 2012. **119**: p. S60-S63.
6. Casey, S.E., et al., *Contraceptive use among adolescent and young women in North and South Kivu, Democratic Republic of the Congo: a cross-sectional population-based survey*. 2020. **17**(3): p. e1003086.
7. Darroch, J.E., et al., *Adding it up: costs and benefits of meeting the contraceptive needs of adolescents*. 2016.
8. Starrs, A.M., et al., *Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission*. 2018. **391**(10140): p. 2642-2692.
9. Dioubaté, N., et al., *Barriers to contraceptive use among urban adolescents and youth in Conakry, Guinea*. 2021. **2**: p. 42.
10. AbouZahr, C.J.B.m.b., *Global burden of maternal death and disability*. 2003. **67**(1): p. 1-11.
11. Remez, L., V. Woog, and M.J.I.i.B. Mhloyi, *Sexual and Reproductive Health Needs of Adolescents in Zimbabwe*. 2014(3): p. 1-8.
12. Macquarrie, K., *Unmet Need for Family Planning Among Young Women: Levels and Trends. DHS Comparative Reports No. 34. Rockville, MD: ICF International; 2014*. 2018.
13. ADENIJI, O.I., *KNOWLEDGE AND USE OF EMERGENCY CONTRACEPTIVES AMONG OUT-OF-SCHOOL FEMALE YOUTHS IN IDO LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA*. 2013.
14. McCleary-Sills, A.W., K. Stoebenau, and G.J.W.D.I. Hollingworth, *Understanding the adolescent family planning evidence base*. 2014.
15. Joseph, N., et al., *Experiences and perception towards reproductive health education among secondary school teachers in South India*. 2021. **18**(1): p. 1-10.
16. Birdthistle, I. and C. Vince-Whitman, *Reproductive health programs for young adults: school-based programs*. 1997: Pathfinder International, Focus on Young Adults Project.
17. McQueston, K., R. Silverman, and A.J.S.i.f.p. Glassman, *The efficacy of interventions to reduce adolescent childbearing in low-and middle-income countries: a systematic review*. 2013. **44**(4): p. 369-388.
18. Molla, E., et al., *Past eight-year malaria data in Gedeo zone, southern Ethiopia: trend, reporting-quality, spatiotemporal distribution, and association with socio-demographic and meteorological variables*. 2021. **21**(1): p. 1-15.
19. Allison, T., S. Peter, and C.J.R.I.Q.A.S. Jonathan, *Cr terios consolidados para relato de pesquisa qualitativa (COREQ): lista de verifica o de 32 itens para entrevista e grupos focais*. 2017. **19**: p. 349-357.
20. Guba, E.G. and Y.S.J.H.o.q.r. Lincoln, *Competing paradigms in qualitative research*. 1994. **2**(163-194): p. 105.
21. East, R., K. Hammond, and M.J.I.j.o.r.i.m. Wright, *The relative incidence of positive and negative word of mouth: A multi-category study*. 2007. **24**(2): p. 175-184.
22. Moyo, S. and O.J.A.j.o.r.h. Rusinga, *Contraceptives: adolescents' knowledge, attitudes and practices. A case study of rural Mhondoro-Ngezi district, Zimbabwe*. 2017. **21**(1): p. 49-63.
23. Sweya, M.N., et al., *Contraceptive knowledge, sexual behavior, and factors associated with contraceptive use among female undergraduate university students in Kilimanjaro region in Tanzania*. 2016. **7**: p. 109.
24. Melaku, Y.A., et al., *Sexual and reproductive health communication and awareness of contraceptive methods among secondary school female students, northern Ethiopia: a cross-sectional study*. 2014. **14**(1): p. 1-11.

- 1
- 2
- 3
- 4 25. Span, C.M. and B.N.J.T.O.h.o.t.h.o.e. Sanya, *Education and the African diaspora*. 2019: p. 399-412.
- 5
- 6 26. Shiferaw, B.Z., B.T. Gashaw, and F.Y.J.B.r.n. Tesso, *Factors associated with utilization of emergency contraception among female students in Mizan-Tepi University, South West Ethiopia*. 2015. **8**(1): p. 1-10.
- 7
- 8
- 9 27. Nsanya, M.K., et al., *Modern contraceptive use among sexually active women aged 15–19 years in North-Western Tanzania: results from the Adolescent 360 (A360) baseline survey*. 2019. **9**(8): p. e030485.
- 10
- 11
- 12 28. Adjei, G., et al., *Predictors of abortions in rural Ghana: a cross-sectional study*. 2015. **15**(1): p. 1-7.
- 13
- 14
- 15 29. Ekstrand, M., et al., *Preventing pregnancy: a girls' issue. Seventeen-year-old Swedish boys' perceptions on abortion, reproduction and use of contraception*. 2007. **12**(2): p. 111-118.
- 16
- 17 30. Chanthasukh, S., S. Andajani, and T.P. Fairbairn-Dunlop. *Influencing Factors towards Thai Adolescents' Decision Making on Contraceptive Use: Preliminary Results*. in *13th International Conference on Thai Studies "Globalized Thailand? Connectivity, Conflict and Conundrums of Thai Studies"*. 2017.
- 18
- 19
- 20
- 21 31. Ochako, R., et al., *Barriers to modern contraceptive methods uptake among young women in Kenya: a qualitative study*. 2015. **15**(1): p. 1-9.
- 22
- 23 32. Shah, C., V. Solanki, and H.J.T.A.m.j. Mehta, *Attitudes of adolescent girls towards contraceptive methods*. 2011. **4**(1): p. 43.
- 24
- 25 33. Health, M.o., *National Adolescent and Youth Health Strategy (2016-2020)*. 2016, Ministry of Health.
- 26
- 27
- 28 34. Rizvi, F., et al., *Barriers and enablers of contraceptive use among adolescent girls and women under 30 years of age in Cambodia: a qualitative study*. 2021: p. 1-12.
- 29
- 30 35. Sharma, S., et al., *Emergency Contraception and Ectopic Pregnancy: Report of 2 Cases of Young Unmarried Girls-A Cause of Concern*. 2015. **5**(3): p. 260-263.
- 31
- 32 36. Gyesaw, N.Y.K. and A.J.I.j.o.w.s.h. Ankomah, *Experiences of pregnancy and motherhood among teenage mothers in a suburb of Accra, Ghana: a qualitative study*. 2013. **5**: p. 773.
- 33
- 34 37. Shahabuddin, A., et al., *What influences adolescent girls' decision-making regarding contraceptive methods use and childbearing? A qualitative exploratory study in Rangpur District, Bangladesh*. 2016. **11**(6): p. e0157664.
- 35
- 36
- 37 38. Parker, J., et al., *Barriers to contraceptive use among adolescents in two semi-rural Nicaraguan communities*. 2020. **32**(5).
- 38
- 39 39. Coll, C.d.V.N., et al., *Contraception in adolescence: the influence of parity and marital status on contraceptive use in 73 low-and middle-income countries*. 2019. **16**(1): p. 1-12.
- 40
- 41 40. Nalwadda, G., et al., *Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives*. 2010. **10**(1): p. 1-13.
- 42
- 43
- 44
- 45
- 46
- 47
- 48
- 49
- 50
- 51
- 52
- 53
- 54
- 55
- 56
- 57
- 58
- 59
- 60





# Jimma University Institute of Health

## Institutional Review Board

Ref.No: **JHR PG/938/20**Date: **5/11/2020**

To: **Mr. Yohannes Addisu**

**Subject: Ethical Approval of Research Protocol**

The IRB of Institute of Health has reviewed your research project “**Effectiveness of Peer lead education intervention in generating contraceptive demand and utilization behavior among adolescent in Gedio Zone**”

Thus, this is to notify that this research protocol has presented to the IRB meets the ethical and scientific standards outlined in national and international guidelines. Hence, we are pleased to inform you that your research protocol is ethically cleared.

We strongly recommend that any significant deviation from the methodological details indicated in the approved protocol must be communicated to the IRB before it has been implemented.

With Regards!

IRB chairperson  
Million Tesfaye, PhD  
Tel: +2517917063744  
E-mail: mtesfaye1@gmail.com



Tel: +251-47 11 114 57  
P&X: +25147111458-50

Fax: +2514711114 59  
+251471112040

P.O.Box. 378  
JIMMA, ETHIOPIA

e-mail: [iro@ju.edu.et](mailto:iro@ju.edu.et)  
website: <http://www.ju.edu.et>

# BMJ Open

## Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia: Formative qualitative study.

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-060582.R1
Article Type:	Original research
Date Submitted by the Author:	04-Jun-2022
Complete List of Authors:	Wondimagegne, Yohanness; Dilla Health Science and Referral Hospital, ; Debelew, Gurmesa Tura; Jimma University, Birhanu, Zewdie ; Jimma University, Health, behavior and Society
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Qualitative research
Keywords:	PUBLIC HEALTH, QUALITATIVE RESEARCH, PRIMARY CARE

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1  
2  
3 **Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia:**  
4 **Formative qualitative study.**  
5  
6  
7  
8  
9

10 Yohannes Addisu<sup>1\*</sup>, Gurmesa Tura<sup>2</sup>, Zewdie Birhanu<sup>2</sup>  
11  
12  
13  
14

15  
16 \*Corresponding author; Yohannes Addisu, email address: [yohannes\\_24@yahoo.com](mailto:yohannes_24@yahoo.com)  
17

18 **Authors' order, affiliations and addresses:**  
19

20  
21 Yohannes Addisu:<sup>1\*</sup>Dilla University, College of Health Sciences and Medicine, Department of  
22 Health, Behavior and Society, Dilla, Ethiopia P.O.Box 419, Telephone +251911939416, e-mail  
23 [yohannes\\_24@yahoo.com](mailto:yohannes_24@yahoo.com)  
24  
25  
26  
27

28  
29 Gurmesa Tura: <sup>2</sup>Jimma University, Institute of Health, Faculty of Public Health, Department of  
30 population and family health, Jimma, Ethiopia. P.O.Box 378.  
31  
32

33  
34 Zewdie Birhanu: <sup>2</sup>Jimma University, Institute of Health, Faculty of Public Health, Department  
35 of Health, Behavior and Society, Jimma, Ethiopia. P.O.Box 378.  
36  
37  
38

39  
40 Word Count- 6105  
41  
42  
43  
44  
45  
46

47 **Keywords:** Contraceptive barrier; Adolescent; Student; School; Ethiopia  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57

## Abstract

**Objective:** To assess barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia in 2021.

**Design:** A ground theory approach of the qualitative study was conducted between December 2020 and April 2021 in Gedeo Zone, South Ethiopia.

**Setting:** The study was conducted, in two urban schools and four rural schools, in Gedeo Zone, Gedeo Zone is one of the 14 Zones in the Southern Nations, Nationalities and Peoples' Region of Ethiopia.

**Participants:** Data were collected through in-depth interviews with 24 students and key informant interviews with 28 health professionals and others.

**Primary outcome:** The primary outcome is the assessment of barriers to contraceptive use among high school students.

**Results:** The findings of the study were organized into four major themes that explore contraceptive use barriers; these include; Individual related barriers such as knowledge, fear, perceptions, and psychosocial development. Community-related barriers, encompass unpleasant rumors, family pressure, social and cultural norms, Economic Vulnerability, and religious beliefs. Health facility-related barriers such as the arrangement of health services, and health workers' behavior. Finally, a weak School and service integration was identified.

**Conclusions:** Adolescents' contraceptive use was affected by various level of barrier that ranges from the individual level up to the multi-sectoral level barrier. Students note a variety of barriers to the use of contraception and that, without contraception, sexual activity can lead to increased risk for unintended pregnancy and its associated health risks.



### **Strength and limitation of the study**

We applied an elicitation study to identify silent beliefs for questionnaire formulation and record review to see the experience of adolescent contraceptive behavior.

The study excludes adolescents whose age is 10-14 Years.

The study excludes male students' contraceptive use behavior.

It exclusively considers adolescents who are still in school.

Because of the delicate nature of the subject, focus group discussions are not used.

## Background

Global developmental goals and strategies have recognized the importance of adolescents' health and rights [1-3]. Universal access to sexual and reproductive health services and rights by 2030, including contraceptive utilization, is a priority global agenda for sustainable development[4]. Currently, the largest-ever group of young people in history becoming sexually active, and therefore need contraceptive utilization [5]. On the other hand, adolescents' sexual and reproductive health (SRH) needs remain largely unmet globally[6]. Access to SRH information determines the burden of adolescent pregnancies and unwanted pregnancies [7]. Worldwide, about 15% of unsafe abortions occur among girls under the age of 20 years annually. Early pregnancy and childbearing typically denote the end of formal education, and early marriage, and restrict opportunities for employment[8]. SRH issues, including unwanted pregnancies, remain a significant public concern in sub-Saharan Africa [9].

Approximately 85 percent of sexually active adolescent girls who do not want to become pregnant do not use modern contraception [10]. In most parts of the developing world, unmarried, sexually active adolescents who are not in a formal partnership require contraception, which is often unrecognized; additionally, this population faces stigma and social condemnation if they are forced to use it [11] [12]. As a result, they are easily exposed to undesirable health and socioeconomic consequences such as induced/unsafe abortion, high fertility, obstructed labor, and its complications such as obstetric fistula, and hypertensive disorders of pregnancy [13].

Studies showed that about forty percent of girls reported that they had difficulties in discussing sexual issues with their mother due to fear and shyness [13, 14]. The importance of reproductive health education at school has been acknowledged in the sustainable development goals agenda to ensure that the necessary knowledge and skills in this area are acquired by all learners [15]. Schools are an appropriate setting in which to contribute to the development of healthy sexuality [16].

Access for adolescents to sexual and reproductive health services and comprehensive sex education that is of high quality, youth-friendly, and respects the right to confidentiality, privacy, and informed consent remains a challenge in many countries[5]. In such circumstances, designing programs in the school environment improves young people's decision-making and

1  
2  
3 negotiation skills, as well as self-esteem and reproductive health [17]. However, there is still  
4 insufficient evidence in this regard, so this study examines barriers to contraceptive use among  
5 high school students for program planning and interventions in Gedeo Zone, South Ethiopia.  
6  
7

## 8 **Methods and Materials**

### 9 **Study Setting and Period**

10  
11 The study was conducted in Gedeo Zone. Gedeo Zone is located in the Southern Nations,  
12 Nationalities and Peoples' Region of Ethiopia with a population of 1,651,000 and a total  
13 household of 336,804. This makes it the most densely populated Zone in the Southern Region, of  
14 Ethiopia. Currently, hosting a large population density of over 1, 300 people per km<sup>2</sup>. Dilla is  
15 the capital town of the Gedeo Zone and it is located 362 km from Addis Ababa, the capital city  
16 of Ethiopia. There are seven senior secondary schools in the Zone with a total of 24,445 students  
17 attending the schools during the time of the study [18]. The study was conducted from December  
18 2, 2020–to February 29, 2021.  
19  
20  
21  
22  
23  
24  
25  
26

### 27 **Study Design**

28  
29 The researchers used a ground theory approach. Grounded theory is a suitable methodology  
30 when the researcher is keen to know the basic psychosocial process which occurs over time and  
31 explains changes in a particular behavior[19]. The ground theory was chosen because it is  
32 suitable for guiding the development of important data and themes inductively based on  
33 systematically obtained and analyzed data [19, 20].  
34  
35  
36  
37

### 38 **Study Population**

39  
40 The study population was made up of carefully selected students (who could actively engage in  
41 the school) who attended the assigned schools during the study period. Students were recruited  
42 from a variety of grades and schools. Gender and residence (rural vs. urban) were also  
43 considered in the selection process. In addition, health care experts from a variety of fields  
44 (Health extension workers (HEWs), nurses, Public health officers, and Midwives) and  
45 psychologists were included. Overall, the participants and data sources were chosen in stages to  
46 achieve the purpose of saturating ideas about the contraceptive use barrier. The study applied  
47 purposive sampling techniques of data collection.  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## **Patient and Public Involvement**

There was no patient or public involvement in setting the research agenda.

### **Data collection methods and procedures**

Data was gathered through in-depth interviews with students and key informant interviews with health professionals and others who know what is going on in the community and have unique knowledge of a topic. Before the start of data collection, the selected schools and health facilities were contacted to obtain permission to conduct the study. Only at the time of the interview were participants in the study contacted. All of the interviews and conversations took place in schools and health care settings, and no one else was present in the room during the interview except the participants and data collectors. The interview guide aided the interviews. All interviews (which lasted between 30 and 91 minutes) were recorded using a digital voice recorder, and notes were taken during each topic and interview. The saturation of ideas determined the size of the interviewee. In the current context, barrier refers to anything that is regarded as an obstacle that prohibits contraceptive utilization.

### **In-depth interviews with Students**

In-depth interviews were conducted with a total of 24 students from the six schools included in the study. Students were sampled to ensure diversity in age (ranged from 15 to 19 years), sex (11 females and 3 males), and diverse grade level which included (Range from grade ninth to twelve), and from social and natural science streams. The interviews were conducted by investigators in Amharic language and transcribed verbatim to English. The interviews were conducted in a private setting to ensure the privacy and comfort of the students.

### **Key informant interviews-KII (in-depth interview with health staff)**

To triangulate the findings of interviews from students, a total of 28 key informants (mostly health workers) were interviewed with purposively selected staff, at least three informants from each health facility. Consequently, Psychologist and diverse groups of health care providers including community health workers (CHWs), nurses, public health officers, and midwives were included in the key informant interviews. To ensure the diversity of experience, key informants were also purposively selected considering the durations of their experiences. Moreover, about half of the key informants interviewed were trained and certified in contraceptive services and/or youth health.

### **Data analysis**

The data from the interviews were transcribed verbatim and then translated into English for analysis. ATLAS.ti 7.1.4 aided in the coding and further analysis of the data. Investigators read and reread the transcripts before assigning codes (open coding) and developing an initial coding structure. To ensure that the coding structure was relevant and appropriate, one coder performed

1  
2  
3 iterative rounds of open coding on selected transcripts guided by the grounded theory approach,  
4 while the second coder reviewed and verified the emergent codes. Finally, the study team  
5 analyzed the coded transcripts and generated codes to agree on the coding system and code  
6 definitions that would be utilized to code all transcripts. The findings were categorized into  
7 themes and sub-themes based on important quotes. Then after students' barriers to using  
8 contraceptive was described using the key themes and sub-themes that arose. Peer debriefing was  
9 held with the research team to find alternative explanations and to have formal or informal  
10 discussions with a peer to help interpret the data. For reporting qualitative findings, this study  
11 adheres to the consolidated Criteria for Reporting Qualitative Research (COREQ) standard  
12 protocol[21].

### 20 **Data Validation**

21  
22 In order to maintain the credibility of the study based on the Lincoln and Guba criteria, various  
23 strategies were used to ensure data validation [22]. At the beginning, the data collection tool  
24 (interview guide) was pre-tested on two KII and one IDIs Specifically, KII was conducted with  
25 health personnel trained on Youth friendly service and IDIs was conducted with female  
26 preparatory student. To set up trustworthiness a studies assistant and the studies crew engaged in  
27 peer debriefing. Following a dialogue with corporations of principal investigators, the tool  
28 became modified. To diversify the study participants, the adolescent interviewees and key  
29 informants were recruited based on socio-economic characteristics (gender, age, education level,  
30 and occupation) to get a broader range of perspectives from various participants. A summary of  
31 significant themes was presented to study participants at the end of each data collecting period,  
32 and a discussion was held to avoid any confusing matters. To ensure member checking, the  
33 transcription and translation were given, as well as a synopsis of key themes and some  
34 perplexing concepts, so that they could check the interpretations and offer their comments,  
35 critiques, explanation, and confirmation. The study's final conclusion was shared with all study  
36 participants to ensure that their ideas were appropriately reflected. Prolonged engagement, which  
37 has been obtained by staying in the research area for an extended period, was done. The  
38 principal investigator verified the points mentioned in the IDIs and KIIs throughout this time. He  
39 observed and confirmed various concerns such as the public's impression of contraception,  
40 misconceptions about contraceptives, rumors about contraception, health professionals' attitudes  
41 regarding adolescent contraception use, and existing Socio-cultural expectations and norms  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 about contraceptive use of adolescents were observed. In order to ensure transferability, the  
4 entire research process, participants' different viewpoints and experiences, methods,  
5 interpretation of results, and contributions of research assistants were all thickly described.  
6  
7 Participants who contribute to the findings, interpretations, and recommendations ensure  
8 dependability. The findings of this study have been audited and confirmed with the aid of  
9 advisors, colleagues, and different individuals who are familiar with qualitative research. The  
10 findings have been correspondingly verified with the aid key informants like Health workers,  
11 school counselors, students, and teachers. Furthermore, every procedure becomes documented,  
12 and audio data and made to be had to look auditor researchers for cross-checking.  
13  
14  
15  
16  
17  
18

### 19 **Ethical Consideration**

20 Ethical approval of this study was obtained from the Institutional Review Board (IRB) of Jimma  
21 University (Ref. No. IHRPG938/5/11/2020), and a permission letter was obtained from the Zonal  
22 health bureau, Dilla town administrator, and school directors. Written informed consent and  
23 parental/guardians consent for participants were secured from all study participants. After  
24 informed consent was sought from each of the adolescents and their parents, the data was  
25 collected in a separate location to protect the privacy of the participants.  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## Result

### Participants' demographic profile

A total of 52 participants took part in this study. The majority of study participants' religion was Protestant, followed by Orthodox Christians. All invited participants have successfully participated in this study. In-depth interviews were conducted with 24 students (grades 9 to 12). The age of the students was between 15 and 19 years (mean 17.1) (**Table 1**). In addition, 28 professionals (mostly health professionals) from different professional backgrounds participated in the in-depth interview (10 CHWs, 4 nurses, 4 public health officials, 7 midwives, 1 health promoter commissioned by Non governmental organization (NGO) clinic, and 2 psychologists). Almost half of the key informants' were trained in contraceptive services and/or Youth health (**Table 2**).

**Table 1: Characteristics of in-depth interview (IDI) study participants (IDI=24).**

characteristics of respondents	Category	Frequency	Percent
<b>Age</b>	15	5	20.8
	16	3	12.6
	17	5	20.8
	18	6	25.0
	19	5	20.8
<b>Sex</b>	Female	18	75
	Male	6	25
<b>Residence</b>	Urban	10	41.7
	Rural	14	58.3
<b>Marital status</b>	Unmarried	19	79.2
	Marred	5	20.8
<b>Education level</b>	9th grade	6	25.0
	10th grade	7	29.2
	11th grade	5	20.8
	12th grade	6	25.0
<b>Religion</b>	Protestant	13	54.2

	Orthodox	8	33.3
	Muslim	2	8.3
	Catholic	1	4.2

**Table 2: Characteristics of key informant interview (KII) study participants (KII=28).**

characteristics of respondents	Category	Frequency	Percent
<b>Age</b>	23-29	7	25.0
	30-40	16	57.1
	41-50	5	17.9
<b>Sex</b>	Female	19	67.9
	Male	9	32.1
<b>Residence</b>	Urban	10	35.7
	Rural	18	64.3
<b>Marital status</b>	Marred	12	42.9
	Unmarried	16	57.1
<b>Educational status</b>	Certificate	1	3.5
	Diploma	12	42.9
	Degree and above	15	53.6
<b>Religion</b>	Protestant	14	50.0
	Orthodox	10	35.8
	Muslim	2	7.1
	Catholic	2	7.1
<b>Profession</b>	Community health workers	10	35.7
	Nurses	4	14.3
	Public health officers	4	14.3
	Midwives	7	25.0
	Health Promoter	1	3.6
	Psychologists	2	7.1



## Themes and Category related with the study

In this study, four themes were identified which are Individual related barriers, Community-related barriers, Health Service barriers, and School and Service integration barriers (Table 3).

**Table 3 Themes and Categories**

Themes	Categories
Individual related barriers	<ul style="list-style-type: none"> <li>➤ Knowledge</li> <li>➤ Fear</li> <li>➤ Misconception</li> <li>➤ Psychosocial development</li> </ul>
Community-related barriers	<ul style="list-style-type: none"> <li>➤ Unpleasant rumors</li> <li>➤ Family pressure</li> <li>➤ Social and Cultural Norms</li> <li>➤ Economical vulnerability</li> <li>➤ Religious Beliefs</li> </ul>
Health Service barriers	<ul style="list-style-type: none"> <li>➤ Health service arrangement</li> <li>➤ Health workers behavior</li> </ul>
School and Service Integration barrier	<ul style="list-style-type: none"> <li>➤ Weak School and Service Integration</li> </ul>

### Individual related barriers

According to the current study, Individual related barriers were a specific background of the study population that can impact functioning contraceptive use either positively or negatively such as knowledge, fear, misconceptions, and psycho-social development.

#### Knowledge

In this study, one of the person-related barriers that influenced adolescents' contraceptive use was knowledge. The majority of key informants stated that students had limited knowledge of contraception due to a lack of opportunities to learn about reproductive health.

They also mentioned that some students, particularly those who live in rural areas, are unaware of the availability of contraceptive services.

1  
2  
3 *We usually weigh adolescent knowledge during counseling and most lack knowledge about*  
4 *contraceptives. - (KII, Health worker).*  
5  
6

7 *Usually, adolescents do not relate the sexual practice with a pregnancy they do not plan to use*  
8 *contraceptives proactively before pregnancy happens because of a lack of knowledge on*  
9 *contraceptive methods. - (KII, Health worker).*  
10  
11

### 12 **Fear related to contraceptive use**

13 Under the individual-related barrier, one category was fear of contraception use. Fear was  
14 indicated by nearly both categories of study participants as a key barrier to utilizing  
15 contraception. As they mentioned, students are afraid of their family, friends, health workers, and  
16 contraceptive side effects.  
17  
18

19 **Fear of being judged by family and friends:** Students are afraid of being judged by their  
20 parents and friends if they take contraceptives like the Implanon or oral tablets. If they find out  
21 she uses contraception, they gossip about her and discriminate against her, according to the key  
22 informant participant. They also mentioned that students are afraid of not just their parents and  
23 peers, but also their relationships, because they may end up in a quarrel with their partner if they  
24 refuse to use contraceptives like condoms, and they are obliged to accept risky traditional  
25 techniques like withdrawal.  
26  
27

28 *When I use hormonal contraceptives like depo and Implanon, it causes menstrual irregularity*  
29 *and spotting, and I'm afraid that my parents will find out and question why my menstruation has*  
30 *become irregular. -19 year- old Student (IDI)*  
31  
32

33 *In case her friends know that she uses contraceptives, they label her as a naughty girl, so they*  
34 *discriminate against her and everyone thinks that she has a deviant character. -17 year- old*  
35 *Student (IDI)*  
36  
37

38 **Fear of Health Workers:** Furthermore, particularly, key informant participants explained that  
39 students are afraid of health professionals when they go to the health care provider since most of  
40 them are unpleasant, judgmental, and may divulge information to their parents. They even deny  
41 having sex until a laboratory test confirms that they are pregnant because they are afraid of the  
42 health worker.  
43  
44  
45  
46

1  
2  
3 *By the way, I've never seen an adolescent come straight to the health center and ask for*  
4 *contraceptives because they are afraid that even those that come to health facilities will have*  
5 *difficulties articulating and shaking to ask for contraceptive services. - (KII, Health worker).*  
6  
7

8 *In a situation where adolescents arrives at a healthcare facility and are confronted by staff they*  
9 *know or their family, the situation gets worse; they feel panic and usually flee without using the*  
10 *contraceptive they intend to take. -18 year- old Student (IDI).*  
11  
12

13 **Fear of side effects:** Finally, both categories of study participants indicated that students are  
14 afraid of infertility if they use hormonal contraceptives. Furthermore, many are concerned that it  
15 would alter their body's appearance, making them too thin or too obese, as well as induce  
16 menstruation irregularities.  
17  
18

19  
20 *I understand that contraceptives protect me from unplanned pregnancy for the time being, but I*  
21 *am concerned that when I marry, I will not be able to have children. -17 year- old Student (IDI).*  
22  
23

### 24 **Misconceptions**

25 The study showed that a variety of misunderstandings concerning contraceptive use were  
26 investigated. According to both categories of participants, adolescents are not allowed to take  
27 contraception until they are adults and married. A student who uses contraception is regarded as  
28 a deviant. Similarly, concepts such as considering only condoms and post-pill as appropriate  
29 contraceptives used before marriage; having sex with a wide interval period does not expose to  
30 pregnancy; connecting condoms only with the prevention of sexually transmitted diseases such  
31 as HIV/AIDS rather than as a contraceptive; pregnancy could not happen again to someone who  
32 had a history of terminating the pregnancy, and perceiving use of medical abortion and post-pill  
33 redundantly as a normal thing. Furthermore, taking hormonal contraception such as depo exposes  
34 them to infertility, and once a long-acting contraceptive has been used, they believe it is  
35 impossible to remove it whenever they wish to have a child.  
36  
37  
38  
39  
40  
41  
42  
43  
44

45 *I don't use birth control. I reason that, as a student and single woman, I believe no one has ever*  
46 *authorized me to use contraception. -17 year- old Student (IDI).*  
47

48 *I went two years without using contraception when I wasn't pregnant, but then I became*  
49 *pregnant without it. I believe that once I started using it, it would always protect me. -19 year-*  
50 *old Student (IDI).*  
51

### 52 **Psychosocial development**

53  
54 One category identified as an individual label barrier in the current investigation was  
55 psychosocial development and contraceptive use. According to key informants' responses,  
56  
57

1  
2  
3 adolescents do not have regular sexual interaction, and they proceed to sex by mistake before  
4 planning to use contraception. Unwanted pregnancy is a good indicator that this population  
5 should begin using contraception.  
6  
7

8 Furthermore, students are not unable to form a stable relationships owing to their mental  
9 development and age, and hence do not intend to use contraception before sexual intercourse.  
10

11 Adolescents do not want to take contraceptive measures regularly, but want to go to health  
12 institutions regularly for abortion or emergency contraception, and return to the cycle again and  
13 again. Furthermore, the key informant interviewer stated that teens do not want to attend  
14 contraception teaching. The reason for this was that they considered it was only an adult or  
15 married person's concern, or they gossiped and had fun during the school discussion on  
16 reproductive health, or they felt shame or humiliated at home because they feared their parents.  
17  
18

19 *Students at this age are impulsive and want to try everything. They lose control when craving sex  
20 and become pregnant without realizing it. - (KII, Health worker).*  
21

22 *Adolescents at this age abuse sexually and have no intention of using contraception since they  
23 are exposed to sexual activity hastily or unknowingly. - (KII, Health worker).*  
24  
25

### 26 **Theme: Community-related barriers**

27 The second theme revealed in the current study was community-related barriers; under this  
28 theme, the categories identified were unpleasant rumors, Pressure from family, social and  
29 cultural norms, economic vulnerability and, religious beliefs.  
30

#### 31 **Unpleasant rumors**

32 Both students and health professionals reported that there were many rumors in the community  
33 that prohibited contraceptive use, such as if an adolescent goes to a health center and they  
34 suspect she is going to get an abortion or contraceptive, then there may be a rumor that Mr. x's  
35 daughter is using contraceptive and everyone thinks she is a deviant, and on the other hand if one  
36 woman experiences weight loss after using contraceptive, she advocates for all women around  
37 her to not use that contraceptive. The same can be said about other rumors such as, 'If a woman  
38 inserts IUCD into her uterus, it bursts out and jumps to her brain, causing major damage.' The  
39 other rumor was about Implanon, which was 'when we take implanon, it disappears within the  
40 flash and inside the body'. The other rumor was about infertility, 'contraceptive use exposes  
41 adolescents to infertility in the future when they get married'. Furthermore, the health  
42 professionals stated that because the public mind is already preoccupied with rumors, if they  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 experience any problems after using contraception, they instantly associate it with contraception  
4 and request its removal or discontinue use.  
5

6  
7 *When my mother and our next-door neighbor discuss about contraception, they almost always*  
8 *grumble about it. According to what I recall from their conversation, women who have*  
9 *contraception injected into their arms become sterile for the rest of their lives. -16 year- old*  
10 *Student (IDI).*  
11

### 12 **Pressure from family**

13  
14 According to the current finding, the family put high pressure on adolescents to not use  
15 contraceptives even if they have the intention to use them. Reflections from both categories of  
16 participants showed that adolescents are terrified of using Implanon and daily pills because they  
17 will be noticed by their families. Moreover, they don't even want to take Clint's card home with  
18 them. Both students and health professionals claimed that most adolescents use depo due to  
19 family pressure because it is not feasible for anyone. Except for a few families, families are  
20 generally resistant, and they do not suspect that their children are exposed to sexual practices, so  
21 they do not discuss contraception or allow health professionals to teach them.  
22

23  
24 Furthermore, the health professionals explained that families believe that discussing  
25 contraception encourages their children to use contraception or implies that it allows them to  
26 conduct sex indirectly. Students ascertained that the family has followed up to see if their  
27 menstruation has arrived or not, and if there is an irregularity, they have inquired as to why this  
28 is happening. As a result, they provide unnecessary negative reinforcement.  
29

30  
31 *Because they (adolescents) are afraid of their families, the majority of adolescents who receive*  
32 *contraception from our facility choose to leave their card with us rather than take it home. In*  
33 *some cases, we simply call to remind them when their schedule is due. - (KII, Health worker).*  
34  
35

### 36 **Social and Cultural Norms**

37  
38 Another issue related to the community-level barrier to contraception use was social and cultural  
39 norms. According to the majority of health personal respondents, adolescents seeking  
40 contraception face social and cultural challenges. It is embarrassing for them to use contraception  
41 because they are young, single, and live with family. The community's attitude toward students  
42 who used contraception was negative. As a result, they forbid their children from being friends  
43 with girls who use contraception. Study participants also stated that because the community  
44 places a strong value and norm on maintaining virginity until marriage, adolescents who become  
45 pregnant before marriage face severe stigma and discrimination from the community because  
46 they violate social and cultural norms, and as a result, some victims commit suicide.  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57

1  
2  
3 *The community believes that students who live with their families use contraception are deviant*  
4 *or unique. -15 year- old Student (IDI)*  
5

6  
7 *Adolescents who use contraceptives before marriage is considered indecent and experiences*  
8 *multiple sexual practices, therefore their chance of getting a husband in the future decreases*  
9 *because everybody perceives such adolescent as not pure. -19 year- old Student (IDI)*  
10  
11

12  
13 *There is one student who has really good manners and is seen as a role model. She becomes*  
14 *pregnant unexpectedly, and she attempts suicide because she is too humiliated and ashamed to*  
15 *seek emergency contraception - (KII, Health worker).*  
16  
17

### 18 **Economical Vulnerability**

19  
20 As reflections from psychologists and health personnel participants indicated, some adolescents  
21 may not use contraception on purpose to become pregnant as a means of securing their  
22 relationship if their partner has a job with a good wage. Furthermore, adolescents whose parents  
23 are impoverished or deceased may engage in a variety of activities to generate income to support  
24 themselves and other family members. This condition may expose them to sexual abuse and  
25 unintentional sex without planning to use contraception.  
26  
27

28  
29 *I know an orphan female student who sells coffee on the street who was sexually molested and*  
30 *became pregnant, so she come to the health post and asked me to give her a post-partum tablet. -*  
31 *(KII, Health worker).*  
32  
33

### 34 **Religious Beliefs**

35  
36 Religious beliefs, according to both kinds of study participants, are a barrier to contraceptive use  
37 since practically everyone in the study area values religious beliefs and advocates for abstinence  
38 before marriage and views contraception as a bad thing. Adolescents who desire contraception  
39 before marriage are regarded as sinful and repulsive.  
40  
41

42  
43 It is assumed that every adolescent should be a role model for others, and using contraception at  
44 such a young age is a sign of a bad girl and a sin in God's eyes.  
45  
46

47  
48 *Those adolescents who have married resist contraceptive use. The reason they mentioned was if*  
49 *God gives them a child why do they resist God's gift and use contraceptives to prevent*  
50 *pregnancy. - (KII, Health worker).*  
51  
52

### 53 **Theme: Health facility-related barriers**

54 Health facility-related barriers are divided into two categories: Weak health service arrangement,  
55 and Health worker behavior.  
56  
57



### **Weak health service arrangement**

The health care providers ascertained that, health centers lack a structured approach to serve students' sexual and reproductive health needs. Family planning is provided to all age groups within the maternity and child health department (MCH) without segmentation.

Moreover; adolescents have no clue where they can find contraceptives after they arrive at health facilities. There is also a lack of a fluid pass-on framework that allows adolescent reproductive health services to be transferred easily from health posts, schools, and non-governmental organizations to focal Youth-friendly services (YFS) or health facilities.

Furthermore, according to the health personnel report, in most health centers, obtaining a card from the card room is required to obtain any health service, including family planning, which involves bureaucracy such as standing in a lengthy line in the corridor and so on.

In addition, the number YFS available in the study area is extremely limited; it is not integrated with existing primary and referral care systems such as schools, health centers, and health posts; and it does not address the growing contraceptive demand of adolescents. Even, the few available YFS is not branded by a student as being YFS as well as it is not well communicated yet as a result most adolescents do not know where it is located and what kind of service it delivers.

*There is no separate room for family planning in the health center and health post, but it is given in the health department for mother and child, moreover, most health workers do not take special training for the care of adolescents. In an urban setting health post and Kebele (public department) deliver service in the same building these things cause serious discomfort to young people who are thinking about using contraception- (KII, Health worker).*

*Youth-friendly service is not equally visible and it is the most ignored area through program deliberation and allocation of resources; Even if adolescent and reproductive health is one package among health extension programs it is not get as much attention as mother and child health program - (KII, Health worker).*

### **Health Workers behavior**

According to key informants report, critical masses of health care personnel are not well equipped to serve adolescents. The untrained professionals on YFS treat adolescents in an unfriendly manner, with judgmental and disapproving attitudes when they seek contraception, as a result, adolescents want to leave the health center as soon as they take contraception or without it. Moreover, the healthcare workers believe that the student is unfit for family planning services, so they confront the student in some way to avoid receiving the service that they demand in a health facility.

*Counseling should be friendly; if we treat students like family, they will open up and tell us everything about themselves without fear; additionally, a positive approach and counseling will increase contraceptive use compliance. - (KII, Health worker).*



1  
2  
3 *We need more human resources because, despite working on 16 packages of health extension*  
4 *programs, we do not apply our efforts to adolescent reproductive health as boldly as we do to*  
5 *maternity, child, and immunization health. - (KII, Health worker).*

### 7 **Theme: School and Service Integration**

8 The significant number of respondents (health workers) in the current finding showed that weak  
9 School and Service Integration was one major theme identified in this study. Contraceptive usage  
10 services for adolescents are provided in a fragmented and non-standardized manner across  
11 organizations. Even if they serve the same group, they function separately.

12 Furthermore, community health care facilities are not providing the necessary leadership and  
13 information management system to assist students in forming synergistic actions with other  
14 sectors such as schools, sports, and youth affairs, youth and women associations, media, and  
15 nongovernmental organizations. In addition, school-based continuous education, in which health  
16 experts are invited and participate, has not yet been implemented. Similarly, student reproductive  
17 health topic is not addressed in the school setup.

18 *There is a shaky framework connecting the Health Center with the school and other sectors to*  
19 *promote adolescent reproductive health. - (KII, Health worker).*

## 20 **Discussion**

21 This study measured students' contraceptive usage barriers as a baseline for program planning  
22 and interventions in Gedeo Zone Secondary School, South Ethiopia. Accordingly, the study  
23 showed that students have multiple barriers to contraceptive use, namely; Individual related  
24 barriers, Community-related barriers, Health Service barriers, and School and Service integration  
25 barriers. Low knowledge was perceived as a notable barrier to contraceptive use which is similar  
26 according to research from Ethiopia, Zimbabwe, and Tanzania [23-25]. The lack of reproductive  
27 health education at school was the cause of students' lack of knowledge. This indicates that a  
28 health communication strategy should be developed and school-based awareness-raising actions  
29 should be implemented. Furthermore, student reproductive health interventions need to receive  
30 adequate attention in the school curriculum and other school club activities, linking students with  
31 health facilities and YFS can help students to gain a better understanding of the contraceptive  
32 method and significantly improve their knowledge.

33 According to the current study, fear is one of the biggest obstacles to contraception use for  
34 adolescents. This was supported by a study conducted in rural Ghana[26]. As a result, the

1  
2  
3 intervention should include messages encouraging adolescents to make free discussion on SRH  
4 topic including contraceptive use. Moreover, adolescents face serious challenges and negative  
5 enhancements from their important others [parents, religious leaders, health care workers] in  
6 both contraceptive use and discussion. This finding is similar to a study conducted in Zimbabwe  
7 and Nigeria[11] [12]. Teachers may also shy away from providing sexual and reproductive  
8 health content, as they do not feel comfortable talking about and teaching the material[26]. On  
9 top of this, adolescent boys often see contraceptive use as the girl's responsibility[26]. Thus,  
10 providing comprehensive sex education at school with trained personnel is needed in addition,  
11 service integration with school is facilitating contraceptive utilization by the student.  
12  
13  
14  
15  
16  
17  
18

19 In the current study, one barrier to the use of contraceptives was psychosocial development.  
20 This finding is supported by studies conducted in Zimbabwe[27], as adolescents are immature  
21 and have reduced impulse control, and are less able to plan and use contraceptives than adults.  
22 Usually, this group is a neglected group. Even if they are exposed to sexual practices, which  
23 eventually lead to unintended pregnancy, miscarriage, and many other problems, existing  
24 medical institutions do not consider them normal to use contraceptives [28]. Furthermore, their  
25 skills in contraceptive use, negotiation, and relationships are not fully developed[29]. The  
26 intervention in the form of a prototype audience, a group discussion by bringing up a specific  
27 scenario of a metaphor in the classroom, makes the stated gap smoother. In this study, students  
28 believe that contraception is only available to adults who are married and that the only  
29 contraception available to adolescents is the post-pill and condom, which is similar to a study  
30 done in Zimbabwe[27]. As a result, adolescents who use contraceptives other than the above are  
31 seen as unique and deviant and associated the user with promiscuity and straying, as similar to  
32 research conducted in Thailand and Kenya [30, 31]. Students prefer post-pill tablets since they  
33 are easy to ingest and readily available; however, a case study in India [32] shows that frequent  
34 use of emergency contraception has a significant negative health impact, including ectopic  
35 pregnancy. Similar to this, just as it is relatively easy to terminate a pregnancy after the initiation  
36 of medical abortion, this phenomenon has its contribution as a barrier to contraceptive use. Thus,  
37 we must address these misconceptions through drama, poetry, and key message preparation and  
38 reading to students during morning flag hour or before or after drama portrayal and other  
39 sessions.  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 The current study discovered that numerous rumors are already embedded in the community's  
4 mind and may act as a barrier to contraceptive use, which is consistent with research conducted  
5 in Kenya, Ghana, and India [9, 30, 33]. It should be noted that not all methods are suitable for all  
6 adolescents. In addition, it implies that we should address each rumor in a different way, such as  
7 through drama, poetry, role play, and individual or group counseling.  
8  
9

10  
11  
12 Furthermore, there is a community norm, socio-cultural expectations, and contradictions that  
13 prohibit contraceptive use among the study population. Since the community has a strong value  
14 on preserving virginity until marriage, it is difficult to teach about contraception through  
15 community channels like community dialogue which is similar to a study conducted in  
16 Nicaraguan and low-and middle-income countries [34, 35]. As a result, we must consider several  
17 alternatives to community-level intervention, such as school, which is free of religious leaders,  
18 community members, and parental pressure.  
19  
20

21 Finally, this study highlights the lack of adolescent contraceptive capacity building across many  
22 sectors, including health care facilities, schools, sports, and youth affairs, youth and women  
23 associations, media, and non-governmental organizations as a study supported by research from  
24 Guinea, northern Ethiopia, Ghana, and Bangladesh [9, 36-38]. As a result, Multi-Sectorial  
25 integration and involvement can help to overcome the obstacle and increase the uptake of  
26 contraceptive use.  
27  
28

29  
30 **Limitation**, The main limitation of the current study was that it did not consider adolescents  
31 outside of the school setting moreover, focus group discussions techniques of data collection was  
32 not applied due to the sensitive nature of the topic studied.  
33  
34

35  
36 **Implications**, The current study shows that adolescents should have SRH services that are  
37 integrated with other sectors, such as schools and youth organizations, social welfare, and the  
38 media. Furthermore, enhancing capacity building and working with an organization that works  
39 on this target population is very necessary. It is important to list and identify the major barrier to  
40 contraceptives by adolescents and then devise a strategy to address these barriers through  
41 multiple methods and approaches as indicated above.  
42  
43

## 44 **Conclusion**

45  
46 Adolescents' contraceptive use was affected by the various levels of barriers that ranges from the  
47 individual level up to the multi-sectorial level barriers. Students note a variety of barriers to the  
48  
49  
50

1  
2  
3 use of contraception and that, without contraception, sexual activity can lead to increased risk for  
4 unintended pregnancy and its associated health risks. Moreover, there is a need for SRH  
5 integration at the school level and work on the barrier that influences contraceptive use across all  
6 levels of influence.  
7  
8  
9

## 10 **Author affiliations**

11 <sup>1\*</sup> Department of Health, Behavior, and Society, College of Health Sciences and Medicine, Dilla  
12 University, Dilla, Ethiopia.

13 <sup>3</sup>Department of Population and Family Health, Institute of Health, Jimma University, Jimma,  
14 Ethiopia.

15 <sup>2</sup>Department of Health, Behavior, and Society, Institute of Health, Jimma University, Jimma,  
16 Ethiopia.

17 **Acknowledgments** The authors would like to acknowledge the Institute of Health, Jimma  
18 University, and Dilla University for funding the study. The authors are also grateful to the study  
19 participants for their dedicated time and volunteer participation.

20 **Contributors** YA was involved in the conception, design, data collection, and analyses; wrote  
21 the draft of the paper. ZB and GT were involved in the design and analyses. All authors were  
22 involved in report writing and interpretation; reviewed the study and drafts of the manuscript,  
23 read and approved the final manuscript, and agreed to submission.

24 **Funding** The study was funded by Jimma University, the Institute of Health, and Dilla  
25 University.

26 **Competing interests** none declared.

27 **Patient consent for publication** Not required

28 **Ethics approval** Ethical approval was obtained from the Institutional Review Board of Jimma  
29 University (Ref. No. IHRPG938/5/11/2020). Written informed consent was obtained from all  
30 the study participants.

31 **Provenance and peer review** Not commissioned; externally peer-reviewed.

32 **Data availability statement** Data are available upon reasonable request. Availability of data and  
33 materials: the data sets used and/or analysed during the current study are available from the  
34 corresponding author on reasonable request.

## 35 **Reference**

- 36 1. Kuruvilla, S., et al., *The Global strategy for women's, children's and adolescents' health*  
37 *(2016–2030): a roadmap based on evidence and country experience*. 2016. **94**(5): p. 398.
- 38 2. Nations, U.J.N.Y.U.N., Department of Economic and S. Affairs, *Transforming our*  
39 *world: The 2030 agenda for sustainable development*. 2015.
- 40 3. Sheehan, P., et al., *Building the foundations for sustainable development: a case for*  
41 *global investment in the capabilities of adolescents*. 2017. **390**(10104): p. 1792-1806.
- 42 4. Bolyen, E., et al., *Reproducible, interactive, scalable and extensible microbiome data*  
43 *science using QIIME 2*. 2019. **37**(8): p. 852-857.
- 44 5. Braeken, D., I.J.I.J.o.G. Rondinelli, and Obstetrics, *Sexual and reproductive health needs*  
45 *of young people: matching needs with systems*. 2012. **119**: p. S60-S63.

6. Casey, S.E., et al., *Contraceptive use among adolescent and young women in North and South Kivu, Democratic Republic of the Congo: a cross-sectional population-based survey*. 2020. **17**(3): p. e1003086.
7. Darroch, J.E., et al., *Adding it up: costs and benefits of meeting the contraceptive needs of adolescents*. 2016.
8. Starrs, A.M., et al., *Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission*. 2018. **391**(10140): p. 2642-2692.
9. Dioubaté, N., et al., *Barriers to contraceptive use among urban adolescents and youth in Conakry, Guinea*. 2021. **2**: p. 42.
10. AbouZahr, C.J.B.m.b., *Global burden of maternal death and disability*. 2003. **67**(1): p. 1-11.
11. Remez, L., V. Woog, and M.J.I.i.B. Mhloyi, *Sexual and Reproductive Health Needs of Adolescents in Zimbabwe*. 2014(3): p. 1-8.
12. Macquarrie, K., *Unmet Need for Family Planning Among Young Women: Levels and Trends. DHS Comparative Reports No. 34*. Rockville, MD: ICF International; 2014. 2018.
13. ADENIJI, O.I., *KNOWLEDGE AND USE OF EMERGENCY CONTRACEPTIVES AMONG OUT-OF-SCHOOL FEMALE YOUTHS IN IDO LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA*. 2013.
14. McCleary-Sills, A.W., K. Stoebenau, and G.J.W.D.I. Hollingworth, *Understanding the adolescent family planning evidence base*. 2014.
15. Joseph, N., et al., *Experiences and perception towards reproductive health education among secondary school teachers in South India*. 2021. **18**(1): p. 1-10.
16. Birdthistle, I. and C. Vince-Whitman, *Reproductive health programs for young adults: school-based programs*. 1997: Pathfinder International, Focus on Young Adults Project.
17. Mason-Jones, A.J., et al., *Can peer education make a difference? Evaluation of a South African adolescent peer education program to promote sexual and reproductive health*. 2011. **15**(8): p. 1605-1611.
18. Molla, E., et al., *Past eight-year malaria data in Gedeo zone, southern Ethiopia: trend, reporting-quality, spatiotemporal distribution, and association with socio-demographic and meteorological variables*. 2021. **21**(1): p. 1-15.
19. Roudsari, R.L., T. Khadivzadeh, and M. Bahrami, *A grounded theory approach to understand the process of decision making on fertility control methods in urban society of Mashhad, Iran*. Iranian journal of nursing and midwifery research, 2013. **18**(5): p. 408.
20. Noone, J., *The process of contraceptive decision-making in women: Using a feminist grounded theory approach*. 2003: University of Hawai'i at Manoa.
21. Allison, T., S. Peter, and C.J.R.I.Q.A.S. Jonathan, *Critérios consolidados para relato de pesquisa qualitativa (COREQ): lista de verificação de 32 itens para entrevista e grupos focais*. 2017. **19**: p. 349-357.
22. Guba, E.G. and Y.S.J.H.o.q.r. Lincoln, *Competing paradigms in qualitative research*. 1994. **2**(163-194): p. 105.
23. Melaku, Y.A., et al., *Sexual and reproductive health communication and awareness of contraceptive methods among secondary school female students, northern Ethiopia: a cross-sectional study*. BMC public health, 2014. **14**(1): p. 1-11.



24. Moyo, S. and O. Rusinga, *Contraceptives: adolescents' knowledge, attitudes and practices. A case study of rural Mhondoro-Ngezi district, Zimbabwe*. African journal of reproductive health, 2017. **21**(1): p. 49-63.
25. Nsanya, M.K., et al., *Modern contraceptive use among sexually active women aged 15–19 years in North-Western Tanzania: results from the Adolescent 360 (A360) baseline survey*. BMJ open, 2019. **9**(8): p. e030485.
26. Adjei, G., et al., *Predictors of abortions in rural Ghana: a cross-sectional study*. 2015. **15**(1): p. 1-7.
27. Moyo, S. and O.J.A.j.o.r.h. Rusinga, *Contraceptives: adolescents' knowledge, attitudes and practices. A case study of rural Mhondoro-Ngezi district, Zimbabwe*. 2017. **21**(1): p. 49-63.
28. Ekstrand, M., et al., *Preventing pregnancy: a girls' issue. Seventeen-year-old Swedish boys' perceptions on abortion, reproduction and use of contraception*. 2007. **12**(2): p. 111-118.
29. Chanthasukh, S., S. Andajani, and T.P. Fairbairn-Dunlop. *Influencing Factors towards Thai Adolescents' Decision Making on Contraceptive Use: Preliminary Results*. in *13th International Conference on Thai Studies "Globalized Thailand? Connectivity, Conflict and Conundrums of Thai Studies"*. 2017.
30. Ochako, R., et al., *Barriers to modern contraceptive methods uptake among young women in Kenya: a qualitative study*. 2015. **15**(1): p. 1-9.
31. Shah, C., V. Solanki, and H.J.T.A.m.j. Mehta, *Attitudes of adolescent girls towards contraceptive methods*. 2011. **4**(1): p. 43.
32. Sharma, S., et al., *Emergency Contraception and Ectopic Pregnancy: Report of 2 Cases of Young Unmarried Girls-A Cause of Concern*. 2015. **5**(3): p. 260-263.
33. Gyesaw, N.Y.K. and A.J.I.j.o.w.s.h. Ankomah, *Experiences of pregnancy and motherhood among teenage mothers in a suburb of Accra, Ghana: a qualitative study*. 2013. **5**: p. 773.
34. Coll, C.d.V.N., et al., *Contraception in adolescence: the influence of parity and marital status on contraceptive use in 73 low-and middle-income countries*. 2019. **16**(1): p. 1-12.
35. Nalwadda, G., et al., *Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives*. 2010. **10**(1): p. 1-13.
36. Melaku, Y.A., et al., *Sexual and reproductive health communication and awareness of contraceptive methods among secondary school female students, northern Ethiopia: a cross-sectional study*. 2014. **14**(1): p. 1-11.
37. Shahabuddin, A., et al., *What influences adolescent girls' decision-making regarding contraceptive methods use and childbearing? A qualitative exploratory study in Rangpur District, Bangladesh*. 2016. **11**(6): p. e0157664.
38. Parker, J., et al., *Barriers to contraceptive use among adolescents in two semi-rural Nicaraguan communities*. 2020. **32**(5).

# SRQR Reporting checklist for qualitative study.

## Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below. SRQR reporting guidelines: O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-1251.

Reporting Item		Page Number
<b>Title</b>		
#1	Concise description of the nature and topic of the study identifying the study as qualitative or indicating the approach (e.g. ethnography, grounded theory) or data collection methods (e.g. interview, focus group) is recommended	1
<b>Abstract</b>		
#2	Summary of the key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results and conclusions	2
<b>Introduction</b>		
Problem formulation	#3 Description and significance of the problem / phenomenon studied: review of relevant theory and empirical work; problem statement	4
Purpose or research question	#4 Purpose of the study and specific objectives or questions	5
<b>Methods</b>		
Qualitative approach and research paradigm	#5 Qualitative approach (e.g. ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g. postpositivist, constructivist / interpretivist) is also recommended; rationale. The rationale should briefly discuss the justification for choosing that theory, approach, method or technique rather than other options available; the assumptions and limitations implicit in those choices and how those choices influence study conclusions and transferability. As appropriate the rationale for several items might be discussed together.	5
Researcher characteristics and reflexivity	#6 Researchers' characteristics that may influence the research, including personal attributes, qualifications / experience, relationship with participants, assumptions and / or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results and / or transferability	5
Context	#7 Setting / site and salient contextual factors; rationale	5
Sampling strategy	#8 How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g. sampling saturation); rationale	6
Ethical issues pertaining to human subjects	#9 Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	8
Data collection methods	#10 Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources / methods, and modification of procedures in response to evolving study findings; rationale	5
Data collection	#11 Description of instruments (e.g. interview guides,	6



instruments and technologies		questionnaires) and devices (e.g. audio recorders) used for data collection; if / how the instruments(s) changed over the course of the study	5
Units of study	<a href="#">#12</a>	Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	5
Data processing	<a href="#">#13</a>	Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymisation / deidentification of excerpts	6,7
Data analysis	<a href="#">#14</a>	Process by which inferences, themes, etc. were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale	6
Techniques to enhance trustworthiness	<a href="#">#15</a>	Techniques to enhance trustworthiness and credibility of data analysis (e.g. member checking, audit trail, triangulation); rationale	7
<b>Results/findings</b>			
Syntheses and interpretation	<a href="#">#16</a>	Main findings (e.g. interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	9-13
Links to empirical data	<a href="#">#17</a>	Evidence (e.g. quotes, field notes, text excerpts, photographs) to substantiate analytic findings	14-18
<b>Discussion</b>			
Intergration with prior work, implications, transferability and contribution(s) to the field	<a href="#">#18</a>	Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application / generalizability; identification of unique contributions(s) to scholarship in a discipline or field	19-21
Limitations	<a href="#">#19</a>	Trustworthiness and limitations of findings	21
<b>Other</b>			
Conflicts of interest	<a href="#">#20</a>	Potential sources of influence of perceived influence on study conduct and conclusions; how these were managed	21
Funding	<a href="#">#21</a>	Sources of funding and other support; role of funders in data collection, interpretation and reporting	21

None The SRQR checklist is distributed with permission of Wolters Kluwer © 2014 by the Association of American Medical Colleges. This checklist can be completed online using <https://www.goodreports.org/>, a tool made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)

# BMJ Open

## Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia: Formative qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-060582.R2
Article Type:	Original research
Date Submitted by the Author:	03-Nov-2022
Complete List of Authors:	Wondimagegne, Yohanness; Dilla Health Science and Referral Hospital, Health, behaviour and society Birhanu, Zewdie ; Jimma University, Health, behavior and Society Debelew, Gurmesa Tura; Jimma University, Reproductive Health
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Qualitative research
Keywords:	PUBLIC HEALTH, QUALITATIVE RESEARCH, PRIMARY CARE

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1  
2  
3 **1 Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia:**  
4 **2 Formative qualitative study**  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16

17 9 Yohannes Addisu<sup>1\*</sup>, Gurmessa Tura<sup>3</sup>, Zewdie Birhanu<sup>2</sup>  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33

14 Correspondence to Yohannes Addisu; [yohannes\\_24@yahoo.com](mailto:yohannes_24@yahoo.com)  
15  
16  
17  
18

19 <sup>1</sup>Dilla University, College of Health Sciences and Medicine, Department of Health, Behavior  
20 and Society, Ethiopia; <sup>2</sup>Jimma University, Institute of Health, Faculty of Public Health,  
21 Department of population and family health, Ethiopia; <sup>3</sup>Jimma University, Institute of Health,  
22 Faculty of Public Health, Department of Health, Behavior and Society, Ethiopia.  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 31 **Abstract**  
4

5  
6 32 **Objective:** To assess barriers to contraceptive use among high school students in Gedeo Zone,  
7  
8 33 South Ethiopia, in 2021.  
9

10 34 **Design:** A grounded theory approach to the qualitative study was conducted between December  
11  
12 35 2020 and April 2021 in Gedeo Zone, South Ethiopia.  
13

14 36 **Setting:** The study was conducted, in two urban and four rural schools, in Gedeo Zone; Gedeo  
15  
16 37 Zone is one of the 14 Zones in the Southern Nations, Nationalities, and Peoples' Region of  
17  
18 38 Ethiopia.  
19

20 39 **Participants:** A total of 52 in-depth interviews were conducted with students, school counselors,  
21  
22 40 Kebele Youth association coordinators, Zonal child, Adolescent, and Youth officers, health  
23  
24 41 workers, and Non-Governmental Organization workers.  
25

26 42 **Results:** The study's findings were organized into four major themes that explore contraceptive  
27  
28 43 use barriers these include; Individual related barriers such as knowledge, fear, perceptions, and  
29  
30 44 psychosocial development. Community-related barriers encompass fear of rumors, family  
31  
32 45 pressure, social and cultural norms, economic vulnerability, and religious beliefs. Health service-  
33  
34 46 related barriers include the lack of adolescent-responsive health services and health workers'  
35  
36 47 behavior. Finally, Weak school and service integration was identified.  
37

38 48 **Conclusions:** Adolescents' contraceptive use was affected by various barriers ranging from  
39  
40 49 individual to multi-sectorial levels. Students note various barriers to using contraception and that,  
41  
42 50 without contraception, sexual activity can lead to an increased risk for unintended pregnancy and  
43  
44 51 its associated health risks.  
45

46 52 **Keywords:** Contraceptive barrier; Adolescents; Students; School; Ethiopia  
47  
48 53  
49  
50 54  
51  
52 55  
53  
54 56  
55  
56  
57  
58  
59  
60

1  
2  
3 **57 Strengths and limitations of the study**  
4

5 58 We applied an elicitation study to identify silent beliefs for questionnaire formulation and record  
6  
7 59 review to see the experience of adolescent contraceptive behavior.

8  
9 60 The study excludes adolescents whose age is 10-14 Years.

10  
11  
12 61 The study excludes male students' contraceptive use behavior.

13  
14 62 It exclusively considers adolescents who are still in school.

15  
16  
17 63 Because of the delicate nature of the subject, focus group discussions were not used.  
18  
19  
20 64  
21  
22 65  
23  
24 66  
25  
26 67  
27  
28  
29 68  
30  
31 69  
32  
33 70  
34  
35 71  
36  
37 72  
38  
39 73  
40  
41 74  
42  
43 75  
44  
45 76  
46  
47 77  
48  
49 78  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## 79 Background

80 Global developmental goals and strategies have recognized the importance of adolescents' health  
81 and rights [1-3]. Universal access to sexual and reproductive health services and rights by 2030,  
82 including contraceptive utilization, is a priority global agenda for sustainable development [4].  
83 .Currently, the largest-ever group of young people in history is becoming sexually active and  
84 therefore needs contraceptive utilization services [5]. On the other hand, adolescents' sexual and  
85 reproductive health (SRH) needs remain primarily unmet globally [6]. Access to SRH information  
86 determines the burden of adolescent pregnancies and unwanted pregnancies [7]. Worldwide,  
87 about 15% of unsafe abortions occur annually among girls under the age of 20 years. Early  
88 pregnancy and childbearing typically denote the end of formal education and early marriage and  
89 restrict opportunities for employment [8]. SRH issues, including unwanted pregnancies, remain a  
90 significant public health concern in sub-Saharan Africa [9].

91 Approximately 85 percent of sexually active adolescent girls who do not want to become  
92 pregnant do not use modern contraception [10]. However, in most parts of the developing world,  
93 unmarried, sexually active adolescents who are not in a formal partnership require contraception,  
94 which is often unrecognized; additionally, this population faces stigma and social condemnation  
95 if forced to use it [11] [12]. As a result, they are easily exposed to undesirable health and  
96 socioeconomic consequences such as unsafe abortion, high fertility, obstructed labor,  
97 complications such as obstetric fistula, and hypertensive disorders of pregnancy [13].

98 Studies showed that about forty percent of girls reported difficulties discussing sexual issues  
99 with their mothers due to fear and shyness [13, 14]. The importance of education on reproductive  
100 health in schools has been recognized in the sustainable development goals agenda to ensure that  
101 the necessary knowledge and skills in this area are acquired by all learners [15]. Schools are an  
102 appropriate setting in which to contribute to the development of healthy sexuality [16].

103 Access for adolescents to sexual and reproductive health services and comprehensive sex  
104 education that is high quality, youth-friendly, and respects the right to confidentiality, privacy,  
105 and informed consent remains a challenge in many countries [5]. In such circumstances,  
106 designing programs in the school environment improves young people's decision-making and  
107 negotiation skills, self-esteem, and reproductive health [17]. However, there is still insufficient



108 evidence in this regard. Thus this study examines barriers to contraceptive use among high  
109 school students for program planning and interventions in Gedeo Zone, South Ethiopia.

## 110 **Method and Material**

### 111 **Study Setting and Period**

112 The study was conducted in Gedeo Zone. Gedeo Zone is located in the Southern Nations,  
113 Nationalities, and Peoples' Region of Ethiopia, with a population of [1,651,000](#) and a total  
114 household of 336,804. This makes it the most densely populated Zone in the Southern Region of  
115 Ethiopia. Currently, the Zone hosts a large population density of over 1300 people per km<sup>2</sup>. Dilla  
116 is the capital town of the Gedeo Zone, and it is located 362 km from Addis Ababa, the capital  
117 city of Ethiopia. Twenty-six senior secondary schools are in the Zone, with 24,445 students  
118 attending the schools during the study period [18]. The study was conducted from December 2,  
119 2020–to February 29, 2021.

### 120 **Study Design**

121 In this study, data were obtained from various sources based on the ground theory approach  
122 involving key informant interviews with health workers and in-depth interviews with students.  
123 Grounded theory is a suitable methodology when the researcher is keen to know the basic  
124 psychosocial process which occurs over time and explains changes in a particular behavior[19].  
125 Furthermore, the ground theory was chosen because it is suitable for guiding the development of  
126 essential data and themes inductively based on systematically obtained and analyzed data [19,  
127 20].

### 128 **Study Population**

129 The study population comprised carefully selected students (who could actively engage in the  
130 school) who attended the assigned schools during the study period. Students were recruited from  
131 a variety of grades and schools. Gender and residence (rural vs. urban) were also considered in  
132 the selection process. In addition, healthcare experts from various fields (Health extension  
133 workers (HEWs), nurses, Public health officers, and Midwives) and clinical psychologists were  
134 included. Overall, the participants and data sources were chosen in stages to achieve the purpose  
135 of saturating ideas about the contraceptive use barrier. The study applied a purposive sampling  
136 technique for data collection.

### 137 **Patient and Public Involvement**

138 Patients and/or the public were not involved in this study.

### 139 **Data collection methods and procedures**

140 Data was gathered through in-depth interviews with students and key informant interviews with  
141 health professionals and others who know what is going on in the community and have unique  
142 knowledge of a topic. Before data collection, the selected schools and health facilities were  
143 contacted to obtain permission to conduct the study. Only at the time of the interview were  
144 participants in the study reached. Therefore, all of the interviews and conversations took place in  
145 schools and healthcare settings, and no one else was present in the room during the interview  
146 except the participants and data collectors. The interview guide aided the interviews. All  
147 interviews (between 30 and 91 minutes) were recorded using a digital voice recorder, and notes  
148 were taken during each interview. The number of interviews was dictated by category/theme  
149 saturation, which occurred when the research team observed similar responses from multiple  
150 respondents. In the context of this study, a barrier refers to anything that is regarded as an  
151 obstacle that prohibits contraceptive utilization.

### 152 **In-depth Interviews with Students**

153 In-depth interviews were conducted with a total of 24 students from the six schools included in  
154 the study. Students were sampled to ensure diversity in age (ranging from 15 to 19 years), sex  
155 (11 females and three males), and various grade level, which included (Range from grade ninth  
156 to twelve) and from social and natural science streams. The interviews were conducted by  
157 investigators in Amharic language and transcribed verbatim into English. The interviews were  
158 conducted in a private setting to ensure the privacy and comfort of the respondent.

### 159 **Key Informant Interviews-KII (In-depth Interviews with health staff)**

160 To triangulate the findings of interviews from students, a total of 28 key informants (mostly  
161 health workers) were interviewed with purposively selected staff, at least three informants from  
162 each health facility. Consequently, Clinical Psychologists and diverse healthcare providers,  
163 including community health workers (CHWs), nurses, public health officers, and midwives, were  
164 included in the key informant interviews. Key informants were also purposively selected to  
165 ensure the diversity of experience. Moreover, about half of the key informants interviewed were  
166 trained and certified in contraceptive services or youth health. All were employed in the same  
167 catchment area as the study respondent.

168

## 169 **Patient and Public Involvement**

170 No patient involved

## 171 **Data analysis**

172 The data from the interviews were transcribed verbatim and then translated into English for  
173 analysis. ATLAS.ti 7.1.4 aided in the coding and further analysis of the data. Investigators read  
174 and reread the transcripts before assigning codes (open coding) and developing an initial coding  
175 structure. One coder performed iterative rounds of open coding on selected transcripts guided by  
176 the grounded theory approach to ensure that the coding structure was relevant and appropriate. In  
177 contrast, the second coder reviewed and verified the emergent codes. Finally, the study team  
178 analyzed the coded transcripts and generated codes to agree on the coding system and code  
179 definitions used to code all transcripts. The findings were categorized into themes and sub-  
180 themes based on important quotes. Then students' barriers to contraceptives were described using  
181 the key themes and sub-themes. Peer debriefing was held with the research team to find  
182 alternative explanations and to have formal or informal discussions with a peer to help interpret  
183 the data. For reporting qualitative findings, this study adheres to the consolidated Criteria for  
184 Reporting Qualitative Research (COREQ) standard protocol[21].

## 185 **Data Validation**

186 Lincoln and Guba's criteria were used to maintain data validation [22]. In the beginning, the data  
187 collection tool (interview guide) was pre-tested on two KII and one IDIs Specifically, KII was  
188 conducted with health personnel trained on Youth friendly service, and IDIs was conducted with  
189 female preparatory student. In addition, a studies assistant and the studies crew engaged in peer  
190 debriefing to establish trustworthiness. Following a dialogue with corporations of principal  
191 investigators, the tool was modified. To diversify the study participants, the adolescent  
192 interviewees and key informants were recruited based on socio-demographic characteristics  
193 (gender, age, education level, and occupation) to get a broader range of perspectives from  
194 various participants. A summary of significant themes was presented to study participants at the  
195 end of each data-collecting period, and a discussion was held to avoid confusing matters. To  
196 ensure member checking, the transcription and translation were given, as well as a synopsis of  
197 key themes and some perplexing concepts, so that they could check the interpretations and offer  
198 their comments, critiques, explanation, and confirmation. The study's conclusion was shared with  
199 all participants to ensure that their ideas were appropriately reflected. Prolonged engagement,

1  
2  
3 200 which has been achieved by staying in the research area for an extended period, was done. The  
4  
5 201 principal investigator verified the points mentioned in the IDIs and KIIs throughout this time. In  
6  
7 202 addition, he observed and confirmed various concerns, such as the public's impression of  
8  
9 203 contraception, misconceptions about contraceptives, rumors about contraception, health  
10  
11 204 professionals' attitudes regarding adolescent contraception use, and existing Sociocultural  
12  
13 205 expectations and norms about contraceptive use of adolescents were observed. To ensure  
14  
15 206 transferability, the entire research process, participants' different viewpoints and experiences,  
16  
17 207 methods, interpretation of results, and contributions of research assistants were all thickly  
18  
19 208 described. Participants who contribute to the findings, interpretations, and recommendations  
20  
21 209 ensure dependability. The findings of this study have been audited and confirmed with the aid of  
22  
23 210 advisors, colleagues, and different individuals familiar with qualitative research. The findings  
24  
25 211 have been correspondingly verified with the aid key informants like Health workers, school  
26  
27 212 counselors, students, and teachers. Furthermore, every procedure became documented, and audio  
28  
29 213 data and made to be had to look auditor researchers for cross-checking.

### 214 **Ethical Consideration**

30  
31 215 Ethical approval of this study was obtained from the Institutional Review Board (IRB) of Jimma  
32  
33 216 University (Ref. No. IHRPG938/5/11/2020), and a permission letter was obtained from the Zonal  
34  
35 217 health bureau, Dilla town administrator, and school directors. In addition, written informed  
36  
37 218 consent and parental/guardians consent for participants were secured from all study participants.  
38  
39 219 After informed consent was sought from the adolescents and their parents, the data was collected  
40  
41 220 in a separate location to protect the participants' privacy.

42  
43 221

44  
45 222

46  
47 223

48  
49 224

50  
51 225

52  
53 226

54  
55 227

56  
57 228

58  
59 229

230

231

232 **Result**233 **Participants' demographic profile**

234 A total of 52 participants took part in this study. The majority of study participants' religion was  
 235 Protestant, followed by Orthodox Christians. All invited participants successfully participated in  
 236 this study. In-depth interviews were conducted with 24 students (grades 9 to 12). The students'  
 237 ages were between 15 and 19 years (mean 17.1) (**Table 1**). In addition, 28 health professionals  
 238 from different professional backgrounds participated in the in-depth interview (Ten CHWs, Four  
 239 nurses, four public health officials, seven midwives, one health promoter commissioned by a  
 240 Non-governmental organization (NGO) clinic, and Two Clinical psychologists). Almost half of  
 241 the key informants' were trained in contraceptive services or Youth health (**Table 2**).

242 **Table 1: Socio-demographic characteristics of in-depth interview respondents, Gedeo Zone,**  
 243 **Southern Nations, Nationalities and Peoples' Region, Ethiopia (N= 24 students)**

characteristics of respondents	Category	Frequency	Percent
Age	15	5	20.8
	16	3	12.6
	17	5	20.8
	18	6	25.0
	19	5	20.8
Sex	Female	18	75
	Male	6	25
Residence	Urban	10	41.7
	Rural	14	58.3

<b>Marital status</b>	Unmarried	19	79.2
	Married	5	20.8
<b>Education level</b>	9th grade	6	25.0
	10th grade	7	29.2
	11th grade	5	20.8
	12th grade	6	25.0
<b>Religion</b>	Protestant	13	54.2
	Orthodox	8	33.3
	Muslim	2	8.3
	Catholic	1	4.2

244 **Table 2: Socio-demographic characteristics key informant interview respondents, Gedeo**  
 245 **Zone, Southern Nations, Nationalities and Peoples' Region, Ethiopia (N= 28 health**  
 246 **workers)**

<b>characteristics of respondents</b>	<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
<b>Age</b>	23-29	7	25.0
	30-40	16	57.1
	41-50	5	17.9
<b>Sex</b>	Female	19	67.9
	Male	9	32.1
<b>Residence</b>	Urban	10	35.7

	Rural	18	64.3
<b>Marital status</b>	Unmarried	16	57.1
	Married	12	42.9
<b>Educational status</b>	Certificate	1	3.5
	Diploma	12	42.9
	Degree and above	15	53.6
<b>Religion</b>	Protestant	14	50.0
	Orthodox	10	35.8
	Muslim	2	7.1
	Catholic	2	7.1
<b>Profession</b>	Community health workers	10	35.7
	Nurses	4	14.3
	Public health officers	4	14.3
	Midwives	7	25.0
	Health Promoter	1	3.6
	Psychologists	2	7.1

247 **Themes and Category related to the study**

248 In this study, four themes were identified: Individual-related barriers, Community-related  
 249 barriers, Health Service barriers, and School and Service integration barriers (**Table 3**).

250

251

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60



Major themes	Categories
Individual related barriers	lack of knowledge
	Fear
	Misconception
	Psychosocial development
Community-related barriers	Fear of rumors
	Family pressure
	Social and cultural norms
	Economical vulnerability
	Religious Beliefs
Health Service barriers	Lack of adolescent-responsive health services
	Health workers behavior
School and Service Integration barrier	Weak School and Service Integration

**Table 3. Emergent themes and categories of barriers to contraceptive use in the school set up, in the study contexts, Gedeo Zone, Southern Nations, Nationalities and Peoples' Region, Ethiopia, November 2021.**

Barriers to contraceptive use, namely Individual related barriers, Community-related barriers, Health Service barriers, and School and Service Integration barriers, encompass several specific aspects within each main theme details of the significant contraceptive barrier with sub-categories are described below.

#### **Individual related barriers**

According to the findings of this study, Individual related barriers were a specific background of the study population that can impact functioning contraceptive use either positively or negatively, such as lack of knowledge, fear, misconceptions, and psycho-social development.

### 264 **Lack of Knowledge**

265 In this study, one of the person-related barriers that influenced adolescents' contraceptive use was  
266 a lack of knowledge. Most key informants stated that students had limited knowledge of  
267 contraception due to a lack of opportunities to learn about reproductive health.

268 They also mentioned that some students, particularly those who live in rural areas, are unaware  
269 of the availability of contraceptive services.

270 *We usually weigh adolescent knowledge during counseling, and most lack knowledge about*  
271 *contraceptives. - (KII, Health worker).*

272 *Usually, adolescents do not relate sexual practice to pregnancy. In addition, they do not plan to*  
273 *use contraceptives proactively before pregnancy because they lack knowledge of contraceptive*  
274 *methods. - (KII, Health worker).*

### 275 **Fear related to contraceptive use**

276 Under the individual-related barrier, one category was fear of contraception use. Fear was noted  
277 by nearly all student and health worker respondents as a critical barrier to utilizing contraception.  
278 In addition, as they mentioned, students fear their family, friends, health workers, and  
279 contraceptive side effects.

280 **Fear of being judged by family and friends:** Students fear being judged by their parents and  
281 friends if they take contraceptives like the Implanon or oral tablets. According to the key  
282 informant participant, if they find out she uses contraception, they gossip about her and  
283 discriminate against her. They also mentioned that students are afraid of their parents, peers, and  
284 relationships because they may quarrel with their partners if they refuse to use contraceptives  
285 like condoms. They are obliged to accept risky traditional techniques like withdrawal.

286 *When I use hormonal contraceptives like depo and Implanon, it causes menstrual irregularity*  
287 *and spotting. I am afraid my parents will find out and question why my menstruation has become*  
288 *irregular. -19 year- old Student (IDI)*

289 *If her friends know that she uses contraceptives, they label her a naughty girl, so they*  
290 *discriminate against her, and everyone thinks she has an eccentric character. -17 year- old*  
291 *Student (IDI)*

1  
2  
3 292 **Fear of Health Workers:** Furthermore, mainly, key informant participants explained that  
4  
5 293 students are afraid of health professionals when they go to the health care provider since most of  
6  
7 294 them are unpleasant, judgmental, and may divulge information to their parents. They even deny  
8  
9 295 having sex until a laboratory test confirms that they are pregnant because they fear health  
10  
11 296 workers.

12  
13 297 *By the way, I have never seen an adolescent come straight to the health center and ask for*  
14  
15 298 *contraceptives because they are afraid that even those that come to health facilities will have*  
16  
17 299 *difficulties articulating and shaking to ask for contraceptive services. - (KII, Health worker).*

18  
19 300 *In a situation where adolescents arrive at a healthcare facility and are confronted by staff they*  
20  
21 301 *know or their family, the situation gets worse; they feel panic and usually flee without using the*  
22  
23 302 *contraceptive they intend to take. -18 year- old Student (IDI).*

24  
25 303 **Fear of side effects:** Finally, both categories of study participants indicated that students are  
26  
27 304 afraid of infertility if they use hormonal contraceptives. Furthermore, many are concerned that  
28  
29 305 contraceptives would alter their body's appearance, making them too thin or too obese, and  
30  
31 306 inducing menstruation irregularities.

32  
33 307 *I understand that contraceptives protect me from unplanned pregnancy for the time being, but I*  
34  
35 308 *am concerned that when I marry, I will not be able to have children. -17 year- old Student (IDI).*

### 36 37 309 **Misconceptions**

38  
39 310 The study showed that a variety of misunderstandings concerning contraceptive use were  
40  
41 311 investigated. According to both categories of participants, adolescents are not allowed to take  
42  
43 312 contraception until they are married adults. In addition, a student who uses contraception is  
44  
45 313 regarded as a deviant. Similarly, concepts such as considering only condoms and post-pill as  
46  
47 314 appropriate contraceptives used before marriage; having sex with a wide interval period does not  
48  
49 315 expose to pregnancy; connecting condoms only with the prevention of sexually transmitted  
50  
51 316 diseases such as HIV/AIDS rather than as a contraceptive; pregnancy could not happen again to  
52  
53 317 someone who had a history of terminating the pregnancy, and perceiving use of medical abortion  
54  
55 318 and post-pill redundantly as a normal thing was investigated. Furthermore, taking hormonal  
56  
57 319 contraception such as depo exposes them to infertility. Once a long-acting contraceptive has  
58  
59 320 been used, they believe it is impossible to remove it whenever they wish to have a child.

321 *I do not use birth control. As a student and single woman, I believe no one has ever authorized*  
322 *me to use contraception. -17 year- old Student (IDI).*

323 *I went two years without using contraception when I was not pregnant, but then I became*  
324 *pregnant without it. I believe that it would always protect me once I started using it. -19 year-*  
325 *old Student (IDI).*

### 326 **Psychosocial development**

327 One category identified as an individual label barrier in the current study was psychosocial  
328 development and contraceptive use. According to key informants' responses, adolescents do not  
329 have regular sexual interaction and proceed to sex by mistake before planning to use  
330 contraception. Unwanted pregnancy is a good indicator that this population should begin using  
331 contraception.

332 Furthermore, students cannot form a stable relationships owing to their mental development and  
333 age and hence do not intend to use contraception before sexual intercourse.

334 Adolescents do not want to take contraceptive measures regularly but want to go to health  
335 institutions regularly for abortion or emergency contraception and return to the cycle again and  
336 again. Furthermore, the key informant interviewee stated that teens do not want to attend  
337 contraception training. The reason for this was that they considered it was only an adult or  
338 married person's concern. As a result, they gossiped and had fun during the school discussion on  
339 reproductive health or felt shame or humiliated at home because they feared their parents.

340 *Students at this age are impulsive and want to try everything. They lose control when they have*  
341 *sex and become pregnant without realizing it. - (KII, Health worker).*

342 *Adolescents at this age are abused sexually and have no intention of using contraception since*  
343 *they are exposed to sexual activity hastily or unknowingly. - (KII, Health worker).*

### 344 **Theme: Community-related barriers**

345 The second theme in the current study was community-related barriers; under this theme, the  
346 categories identified were unpleasant rumors, Pressure from family, social and cultural norms,  
347 economic vulnerability, and religious beliefs.

### 348 **Fear of rumors**

349 Both students and health professionals reported many rumors in the community that prohibited  
350 contraceptive use, such as if an adolescent went to a health center. They suspect she will get an

1  
2  
3 351 abortion or contraceptive, and there may be a rumor that Mr. x's daughter is using the  
4  
5 352 contraceptive. Everyone thinks she is a deviant; on the other hand, if one woman experiences  
6  
7 353 weight loss after using contraceptives, she persuades all women around her not to use that  
8  
9 354 contraceptive. Furthermore, the health professionals stated that because the public mind is  
10  
11 355 already preoccupied with rumors, if they experience any problems after using contraception, they  
12 356 instantly associate it with contraception and request its removal or discontinuation use.

13 357 *In the community, there are many rumors about long-acting contraceptives. For example, if a*  
14  
15 358 *woman inserts IUCD into her uterus, it bursts out and jumps to her brain, causing significant*  
16  
17 359 *damage. On the other hand, if someone inserts Implanon, it disappears within the flash inside the*  
18  
19 360 *body. - (KII, Health worker).*

20  
21 361 *When my mother and our next-door neighbor discuss contraception, they almost always grumble*  
22  
23 362 *about it. But, according to what I recall from their conversation, women who have contraception*  
24  
25 363 *injected into their arms become sterile for the rest of their lives. -16 year- old Student (IDI).*

#### 26 27 364 **Pressure from family**

28  
29 365 According to the current finding, the family pressure adolescents not to use contraceptives even  
30  
31 366 if they intend to use them. Reflections from both categories of participants showed that  
32  
33 367 adolescents are terrified of using Implanon and daily pills because their families will notice  
34  
35 368 them. Moreover, they do not want to take Clint's cards home.

36 369 Both students and health professionals claimed that most adolescents use depo due to family  
37  
38 370 pressure because it is not feasible for anyone. Except for a few cases, families are generally  
39  
40 371 resistant. They do not suspect their children are exposed to sexual practices, so they do not  
41  
42 372 discuss contraception or allow health professionals to teach them.

43 373 Furthermore, the health professionals explained that families believe that discussing  
44  
45 374 contraception encourages their children to use contraception or implies that it allows them to  
46  
47 375 practice sex indirectly. Students ascertained that the family has followed up to see if their  
48  
49 376 menstruation has arrived or not, and if there is an irregularity, they have inquired as to why this  
50  
51 377 is happening. As a result, they provide unnecessary negative reinforcement.

52 378 *Because they (adolescents) are afraid of their families, most adolescents who receive*  
53  
54 379 *contraception from our facility choose to leave their card with us rather than take them home.*  
55 380 *Sometimes, we call to remind them when their schedule is due. - (KII, Health worker).*

### 381 **Social and cultural norms**

382 Another issue related to the community-level barrier to contraception use was social and cultural  
383 norms. According to most health personnel respondents, adolescents seeking contraception face  
384 social and cultural challenges. It is embarrassing for them to use contraception because they are  
385 young, single, and live with family.

386 *The community believes that students who live with their families and use contraception are*  
387 *deviant or unique. -15 year- old Student (IDI)*

388 *Adolescents who use contraceptives before marriage is considered indecent and experiences*  
389 *multiple sexual practices therefore their chance of getting a husband in the future decreases*  
390 *because everybody perceives such adolescents as not pure. -19 year- old Student (IDI)*

391 *One student has excellent manners and is seen as a role model. However, she becomes pregnant*  
392 *unexpectedly and attempts suicide because she is too humiliated and ashamed to seek emergency*  
393 *contraception- (KII, Health worker).*

### 394 **Economical Vulnerability**

395 As reflections from psychologists and health personnel participants indicated, some adolescents  
396 may not use contraception on purpose to become pregnant as a means of securing their  
397 relationship if their partner has a job with a good wage. Furthermore, adolescents whose parents  
398 are impoverished or deceased may engage in various activities to generate income to support  
399 themselves and other family members. This condition may expose them to sexual abuse and  
400 unintentional sex without planning to use contraception.

401 *I know an orphan female student who sells coffee on the street who was sexually molested and*  
402 *became pregnant, so she came to the health post and asked me to give her a post-partum tablet. -*  
403 *(KII, Health worker).*

### 404 **Religious Beliefs**

405 Religious beliefs, according to both kinds of study participants, are a barrier to contraceptive use  
406 since practically everyone in the study area values religious beliefs and advocates for abstinence  
407 before marriage and views contraception as a bad thing. Adolescents who desire contraception  
408 before marriage regarded as sinful and repulsive.

409 It is assumed that every adolescent should be a role model for others, and using contraception at  
410 such a young age is a sign of a bad girl and a sin in God's eyes.



1  
2  
3 411 *Those adolescents who have married resist contraceptive use. They mentioned that if God gives*  
4 412 *them a child, why do they resist God's gift and use contraceptives to prevent pregnancy? (KII,*  
5 413 *Health worker).*

8 414 **Theme: Health Service -related barriers**

10 415 Health Service related barriers are divided into two categories: Lack of adolescent-responsive  
11 health services and Health worker behavior.

13 417 **Lack of adolescent-responsive health services**

15 418 The health care providers ascertained that health centers lack a structured approach to serve  
16 students' sexual and reproductive health needs. Family planning is provided to all age groups  
17 419 within the maternity and child health department (MCH) without segmentation.

19 420 Moreover, adolescents have no clue where they can find contraceptives after they arrive at health  
20 421 facilities. There is also a lack of a fluid pass-on framework that allows adolescent reproductive  
22 422 health services through a referral from health posts, schools, and non-governmental  
24 423 organizations to focal Youth-friendly services (YFS) or health facilities.

27 424  
28 425 Furthermore, according to the health personnel report, in most health centers, obtaining a card  
29 426 from the card room is required to get any health service, including family planning, which  
31 427 involves bureaucracy, such as standing in a lengthy line in the corridor.

33 428 In addition, the number of YFS available in the study area is minimal; it is not integrated with  
34 429 existing primary and referral care systems such as schools, health centers, and health posts; and it  
36 430 does not address the growing contraceptive demand of adolescents. A student does not mention  
38 431 even the few available YFS as YFS, which needs better communication. As a result, most  
40 432 adolescents need to learn where it is located and what kind of service it delivers.

42 433 *There is no separate room for family planning in the health center and health post for*  
44 434 *adolescents, but it is given in the health department for mother and child; moreover, most health*  
46 435 *workers do not take special training for the care of adolescents. Moreover, in an urban setting,*  
48 436 *health posts and Kebele (public department) deliver service in the same building; these things*  
50 437 *cause serious discomfort to young people thinking about using contraception. - (KII, Health*  
52 438 *worker).*



1  
2  
3 439 *Youth-friendly service is not equally visible, and it is the most ignored area through program*  
4 *deliberation and allocation of resources; Even if adolescent and reproductive health is one*  
5 440 *package among health extension programs, it gets less attention than the mother and child*  
6 441 *health program. - (KII, Health worker).*  
7  
8  
9

### 10 443 **Health Workers behavior**

11 444 According to key informants' reports, critical masses of healthcare personnel are not well  
12 445 equipped to serve adolescents. The untrained professionals at YFS treat adolescents in an  
13 446 unfriendly manner, with judgmental and disapproving attitudes when they seek contraception.  
14 447 Consequently, adolescents want to leave the health center as soon as they take contraception or  
15 448 without it. Moreover, the healthcare workers believe that the student is unfit for family planning  
16 449 services, so they somehow confront the student to avoid receiving the service they demand in a  
17 450 health facility.

18 451 *Counseling should be friendly; if we treat students like family, they will open up and tell us*  
19 452 *everything about themselves without fear; additionally, a positive approach and counseling will*  
20 453 *increase contraceptive use compliance. - (KII, Health worker).*

21 454 *We need more human resources because, despite working on 16 packages of health extension*  
22 455 *programs, we do not apply our efforts to adolescent reproductive health as boldly as we do to*  
23 456 *maternity, child, and immunization service. - (KII, Health worker).*

### 24 457 **Theme: School and Service Integration**

25 458 The significant number of respondents (health workers) in the current study revealed that weak  
26 459 School and Service Integration was one major category identified in this study. Contraceptive  
27 460 usage services for adolescents are provided in a fragmented and non-standardized manner across  
28 461 organizations. Even if they serve the same group, they function separately.

29 462 Furthermore, community healthcare facilities need to provide the necessary leadership and  
30 463 information management system to assist students in forming synergistic actions with other  
31 464 sectors such as schools, sports and youth affairs, youth and women associations, media, and  
32 465 nongovernmental organizations. In addition, school-based continuous education, in which health  
33 466 experts are invited and participate, is yet to be implemented. Similarly, student reproductive  
34 467 health topic is not addressed in the school setup.

35 468 *A shaky framework connects the Health Center with the school and other sectors to promote*  
36 469 *adolescent reproductive health. - (KII, Health worker).*

## 470 Discussion

471 This study explored students' contraceptive usage barriers as a baseline for program planning and  
472 interventions in Gedeo Zone Secondary School, South Ethiopia. Accordingly, the study showed  
473 that students have multiple barriers to contraceptive use, namely Individual related barriers,  
474 Community-related barriers, Health Service barriers, and School and Service integration barriers.  
475 According to research from Ethiopia, Zimbabwe, and Tanzania, poor knowledge was perceived  
476 as a significant barrier to contraceptive use [23-25]. Furthermore, the lack of reproductive health  
477 education at school was the cause of students' lack of knowledge. This indicates that a health  
478 communication strategy should be developed, and school-based awareness-raising actions should  
479 be implemented.

480 Furthermore, student reproductive health interventions need to receive adequate attention in the  
481 school curriculum and other school club activities; linking students with health facilities and  
482 YFS can help students better understand contraceptive methods and significantly improve their  
483 knowledge.

484 According to the current study, fear is one of adolescents' most prominent obstacles to  
485 contraception use. This was supported by a study conducted in rural Ghana[26]. As a result, the  
486 intervention should include messages encouraging adolescents to have free discussions on SRH  
487 topics, including contraceptive use.

488 Moreover, adolescents' face tough challenges and destructive enhancements from their important  
489 others [parents, religious leaders, health care workers] in both contraceptive use and discussion.  
490 This finding is similar to a study conducted in Zimbabwe and Nigeria[11] [12].

491 Teachers may also avoid providing sexual and reproductive health content as they do not feel  
492 uncomfortable discussing and teaching the material. On top of this, adolescent boys often see  
493 contraceptive use as the girl's responsibility[26]. Thus, providing comprehensive sex education  
494 at school with trained personnel is needed; in addition, service integration with the school  
495 facilitates contraceptive utilization by the student. In the current study, psychosocial  
496 development was one barrier to using contraceptives. This finding is supported by a study  
497 conducted in Zimbabwe[27], as adolescents are immature, have reduced impulse control, and are  
498 less able to plan and use contraceptives than adults. Usually, this group is a neglected group.  
499 Even if they are exposed to sexual practices, which eventually lead to unintended pregnancy,

1  
2  
3 500 miscarriage, and many other problems, medical institutions do not consider them eligible to use  
4 501 contraceptives [28].  
5  
6

7 502 Furthermore, adolescents' contraceptive use, negotiation, and relationship skills are not fully  
8 503 developed[29]. The intervention in the form of a prototype audience and a group discussion by  
9 504 bringing up a specific scenario of a metaphor in the classroom makes the stated gap smoother. In  
10 505 this study, students believe that contraception is only available to adults who are married and that  
11 506 the only contraception available to adolescents is the post-pill and condom, similar to a study  
12 507 done in Zimbabwe[27].  
13  
14  
15  
16  
17

18 508 As a result, adolescents who use contraceptives other than the above are seen as unique and  
19 509 deviant and associated the user with promiscuity and straying, similar to research conducted in  
20 510 Thailand and Kenya [30, 31]. Students prefer post-pill tablets since they are easy to ingest and  
21 511 readily available; however, a case study in India [32] shows that frequent emergency  
22 512 contraception has a significant negative health impact, including ectopic pregnancy. Similar to  
23 513 this, just as it is relatively easy to terminate a pregnancy after the initiation of medical abortion,  
24 514 this phenomenon has contributed as a barrier to contraceptive use. Thus, we must address these  
25 515 misconceptions through drama, poetry, and key message preparation and reading to students  
26 516 during morning flag hour or before or after drama portrayal and other sessions.  
27  
28  
29  
30  
31  
32  
33  
34

35 517 The current study discovered that numerous rumors are already embedded in the community's  
36 518 mind and may act as a barrier to contraceptive use, consistent with research conducted in Kenya,  
37 519 Ghana, and India [9, 30, 33]. However, it should be noted that only some methods are suitable  
38 520 for all adolescents. In addition, it implies that we should address each rumor through drama,  
39 521 poetry, role play, and individual or group counseling.  
40  
41  
42  
43  
44

45 522 Furthermore, community norms, socio-cultural expectations, and contradictions prohibit  
46 523 contraceptive use among the study population. Since the community has a considerable value on  
47 524 preserving virginity until marriage, it is challenging to teach about contraception through  
48 525 community channels like community dialogue, similar to a study conducted in Nicaraguan and  
49 526 low-and middle-income countries [34, 35]. As a result, we must consider several alternatives to  
50 527 community-level intervention, such as school, which is relatively under lower influence from  
51 528 religious leaders, community members, and parental pressure.  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 529 Finally, this study highlights the lack of adolescent contraceptive capacity building across many  
4 530 sectors, including health care facilities, schools, sports, and youth affairs, youth and women  
5 531 associations, media, and non-governmental organizations as a study supported by research from  
6 532 Guinea, northern Ethiopia, Ghana, and Bangladesh [9, 36-38]. As a result, Multi-Sectorial  
7 533 integration and involvement can help to overcome the obstacle and increase the uptake of  
8 534 contraceptive use.

9  
10  
11  
12  
13 535 **Limitation**, The main limitation of the current study was that it did not consider adolescents  
14 536 outside of the school setting; moreover, focus group discussions were not applied due to the  
15 537 sensitive nature of the studied topic.

16  
17  
18 538 **Implications**, The current study shows that adolescents should have SRH services integrated  
19 539 with other sectors, such as schools and youth organizations, social welfare, and the media.  
20 540 Furthermore, enhancing capacity building and working with an organization that works on this  
21 541 target population is very necessary. It is crucial to list and identify the significant barrier to  
22 542 contraceptives by adolescents and devise a strategy to address these barriers through multiple  
23 543 methods and approaches as indicated above.

#### 24 544 **Conclusion**

25 545 Adolescents' contraceptive use was affected by various barriers ranging from the individual level  
26 546 up to the multi-sectorial level. Students note various barriers to using contraception and that,  
27 547 without contraception, sexual activity can lead to an increased risk for unintended pregnancy and  
28 548 its associated health risks. Moreover, there is a need for SRH integration at the school level and  
29 549 work on the barrier that influences contraceptive use across all levels of influence.

#### 30 550 **Author affiliations**

31 551 <sup>1</sup>\* Department of Health, Behavior, and Society, College of Health Sciences and Medicine, Dilla  
32 552 University, Dilla, Ethiopia.

33 553 <sup>2</sup>Department of Health, Behavior, and Society, Institute of Health, Jimma University, Jimma,  
34 554 Ethiopia.

35 555 <sup>3</sup>Department of Population and Family Health, Institute of Health, Jimma University, Jimma,  
36 556 Ethiopia.

37 557 **Acknowledgments** The authors would like to acknowledge the Institute of Health, Jimma  
38 558 University, and Dilla University for funding the study. The authors are also grateful to the study  
39 559 participants for their dedicated time and volunteer participation.

560 **Contributors** YA was involved in the conception, design, data collection, and analyses; wrote  
 561 the draft of the paper. ZB and GT were involved in the design and analyses. All authors were  
 562 involved in report writing and interpretation; reviewed the study and drafts of the manuscript,  
 563 read and approved the final manuscript, and agreed to the submission.

564 **Funding** The study was funded by Jimma University, the Institute of Health, and Dilla  
 565 University.

566 **Competing interests** none declared.

567 **Patient consent for publication** is not required

568 **Ethics approval** Ethical approval was obtained from the Institutional Review Board of Jimma  
 569 University (Ref. No. IHRPG995/20/11/2020).

570 **Provenance and peer review** Not commissioned; externally peer-reviewed.

571 **Data availability statement** Data are available upon reasonable request.

## 572 Reference

- 573 1. Kuruvilla, S., et al., *The Global strategy for women's, children's and adolescents' health (2016–*  
 574 *2030): a roadmap based on evidence and country experience*. 2016. **94**(5): p. 398.
- 575 2. Nations, U.J.N.Y.U.N., Department of Economic and S. Affairs, *Transforming our world: The 2030*  
 576 *agenda for sustainable development*. 2015.
- 577 3. Sheehan, P., et al., *Building the foundations for sustainable development: a case for global*  
 578 *investment in the capabilities of adolescents*. 2017. **390**(10104): p. 1792-1806.
- 579 4. Bolyen, E., et al., *Reproducible, interactive, scalable and extensible microbiome data science*  
 580 *using QIIME 2*. 2019. **37**(8): p. 852-857.
- 581 5. Braeken, D., I.J.I.J.o.G. Rondinelli, and Obstetrics, *Sexual and reproductive health needs of young*  
 582 *people: matching needs with systems*. 2012. **119**: p. S60-S63.
- 583 6. Casey, S.E., et al., *Contraceptive use among adolescent and young women in North and South*  
 584 *Kivu, Democratic Republic of the Congo: a cross-sectional population-based survey*. 2020. **17**(3):  
 585 p. e1003086.
- 586 7. Darroch, J.E., et al., *Adding it up: costs and benefits of meeting the contraceptive needs of*  
 587 *adolescents*. 2016.
- 588 8. Starrs, A.M., et al., *Accelerate progress—sexual and reproductive health and rights for all: report*  
 589 *of the Guttmacher–Lancet Commission*. 2018. **391**(10140): p. 2642-2692.
- 590 9. Dioubaté, N., et al., *Barriers to contraceptive use among urban adolescents and youth in*  
 591 *Conakry, Guinea*. 2021. **2**: p. 42.
- 592 10. AbouZahr, C.J.B.m.b., *Global burden of maternal death and disability*. 2003. **67**(1): p. 1-11.
- 593 11. Remez, L., V. Woog, and M.J.I.i.B. Mhloyi, *Sexual and Reproductive Health Needs of Adolescents*  
 594 *in Zimbabwe*. 2014(3): p. 1-8.
- 595 12. Macquarrie, K., *Unmet Need for Family Planning Among Young Women: Levels and Trends. DHS*  
 596 *Comparative Reports No. 34. Rockville, MD: ICF International; 2014*. 2018.



- 1  
2  
3 597 13. ADENIJI, O.I., *KNOWLEDGE AND USE OF EMERGENCY CONTRACEPTIVES AMONG OUT-OF-*  
4 598 *SCHOOL FEMALE YOUTHS IN IDO LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA*. 2013.  
5 599 14. McCleary-Sills, A.W., K. Stoebenau, and G.J.W.D.I. Hollingworth, *Understanding the adolescent*  
6 600 *family planning evidence base*. 2014.  
7 601 15. Joseph, N., et al., *Experiences and perception towards reproductive health education among*  
8 602 *secondary school teachers in South India*. 2021. **18**(1): p. 1-10.  
9 603 16. Birdthistle, I. and C. Vince-Whitman, *Reproductive health programs for young adults: school-*  
10 604 *based programs*. 1997: Pathfinder International, Focus on Young Adults Project.  
11 605 17. Mason-Jones, A.J., et al., *Can peer education make a difference? Evaluation of a South African*  
12 606 *adolescent peer education program to promote sexual and reproductive health*. 2011. **15**(8): p.  
13 607 1605-1611.  
14 608 18. Molla, E., et al., *Past eight-year malaria data in Gedeo zone, southern Ethiopia: trend, reporting-*  
15 609 *quality, spatiotemporal distribution, and association with socio-demographic and meteorological*  
16 610 *variables*. 2021. **21**(1): p. 1-15.  
17 611 19. Roudsari, R.L., T. Khadivzadeh, and M. Bahrami, *A grounded theory approach to understand the*  
18 612 *process of decision making on fertility control methods in urban society of Mashhad, Iran*. Iranian  
19 613 *journal of nursing and midwifery research*, 2013. **18**(5): p. 408.  
20 614 20. Noone, J., *The process of contraceptive decision-making in women: Using a feminist grounded*  
21 615 *theory approach*. 2003: University of Hawai'i at Manoa.  
22 616 21. Allison, T., S. Peter, and C.J.R.I.Q.A.S. Jonathan, *Critérios consolidados para relato de pesquisa*  
23 617 *qualitativa (COREQ): lista de verificação de 32 itens para entrevista e grupos focais*. 2017. **19**: p.  
24 618 349-357.  
25 619 22. Guba, E.G. and Y.S.J.H.o.q.r. Lincoln, *Competing paradigms in qualitative research*. 1994. **2**(163-  
26 620 194): p. 105.  
27 621 23. Melaku, Y.A., et al., *Sexual and reproductive health communication and awareness of*  
28 622 *contraceptive methods among secondary school female students, northern Ethiopia: a cross-*  
29 623 *sectional study*. BMC public health, 2014. **14**(1): p. 1-11.  
30 624 24. Moyo, S. and O. Rusinga, *Contraceptives: adolescents' knowledge, attitudes and practices. A*  
31 625 *case study of rural Mhondoro-Ngezi district, Zimbabwe*. African journal of reproductive health,  
32 626 2017. **21**(1): p. 49-63.  
33 627 25. Nsanya, M.K., et al., *Modern contraceptive use among sexually active women aged 15–19 years*  
34 628 *in North-Western Tanzania: results from the Adolescent 360 (A360) baseline survey*. BMJ open,  
35 629 2019. **9**(8): p. e030485.  
36 630 26. Adjei, G., et al., *Predictors of abortions in rural Ghana: a cross-sectional study*. 2015. **15**(1): p. 1-  
37 631 7.  
38 632 27. Moyo, S. and O.J.A.j.o.r.h. Rusinga, *Contraceptives: adolescents' knowledge, attitudes and*  
39 633 *practices. A case study of rural Mhondoro-Ngezi district, Zimbabwe*. 2017. **21**(1): p. 49-63.  
40 634 28. Ekstrand, M., et al., *Preventing pregnancy: a girls' issue. Seventeen-year-old Swedish boys'*  
41 635 *perceptions on abortion, reproduction and use of contraception*. 2007. **12**(2): p. 111-118.  
42 636 29. Chanthasukh, S., S. Andajani, and T.P. Fairbairn-Dunlop. *Influencing Factors towards Thai*  
43 637 *Adolescents' Decision Making on Contraceptive Use: Preliminary Results*. in *13th International*  
44 638 *Conference on Thai Studies "Globalized Thailand? Connectivity, Conflict and Conundrums of Thai*  
45 639 *Studies"*. 2017.  
46 640 30. Ochako, R., et al., *Barriers to modern contraceptive methods uptake among young women in*  
47 641 *Kenya: a qualitative study*. 2015. **15**(1): p. 1-9.  
48 642 31. Shah, C., V. Solanki, and H.J.T.A.m.j. Mehta, *Attitudes of adolescent girls towards contraceptive*  
49 643 *methods*. 2011. **4**(1): p. 43.

- 1  
2  
3 644 32. Sharma, S., et al., *Emergency Contraception and Ectopic Pregnancy: Report of 2 Cases of Young*  
4 645 *Unmarried Girls-A Cause of Concern*. 2015. **5**(3): p. 260-263.
- 5 646 33. Gyesaw, N.Y.K. and A.J.I.j.o.w.s.h. Ankomah, *Experiences of pregnancy and motherhood among*  
6 647 *teenage mothers in a suburb of Accra, Ghana: a qualitative study*. 2013. **5**: p. 773.
- 7 648 34. Coll, C.d.V.N., et al., *Contraception in adolescence: the influence of parity and marital status on*  
8 649 *contraceptive use in 73 low-and middle-income countries*. 2019. **16**(1): p. 1-12.
- 9 650 35. Nalwadda, G., et al., *Persistent high fertility in Uganda: young people recount obstacles and*  
10 651 *enabling factors to use of contraceptives*. 2010. **10**(1): p. 1-13.
- 11 652 36. Melaku, Y.A., et al., *Sexual and reproductive health communication and awareness of*  
12 653 *contraceptive methods among secondary school female students, northern Ethiopia: a cross-*  
13 654 *sectional study*. 2014. **14**(1): p. 1-11.
- 14 655 37. Shahabuddin, A., et al., *What influences adolescent girls' decision-making regarding*  
15 656 *contraceptive methods use and childbearing? A qualitative exploratory study in Rangpur District,*  
16 657 *Bangladesh*. 2016. **11**(6): p. e0157664.
- 17 658 38. Parker, J., et al., *Barriers to contraceptive use among adolescents in two semi-rural Nicaraguan*  
18 659 *communities*. 2020. **32**(5).
- 19  
20  
21  
22 660  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60



# BMJ Open

## Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia: Formative qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-060582.R3
Article Type:	Original research
Date Submitted by the Author:	21-Jan-2023
Complete List of Authors:	Wondimagegne, Yohanness; Dilla Health Science and Referral Hospital, Health, behaviour and society Birhanu, Zewdie ; Jimma University, Health, behavior and Society Debelew, Gurmesa Tura; Jimma University, Reproductive Health
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Qualitative research
Keywords:	PUBLIC HEALTH, QUALITATIVE RESEARCH, PRIMARY CARE

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1  
2  
3 1 **Barriers to contraceptive use among high school students in Gedeo Zone, South Ethiopia:**  
4 **Formative qualitative study**  
5 2  
6 3  
7 4  
8 5  
9 6  
10 7  
11 8  
12 9  
13 10  
14 11  
15 12  
16 13  
17 14  
18 15  
19 16  
20 17  
21 18  
22 19  
23 20  
24 21  
25 22  
26 23  
27 24  
28 25  
29 26  
30 27  
31 28  
32 29  
33 30  
34 31  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

Yohannes Addisu<sup>1\*</sup>, Gurmesa Tura<sup>3</sup>, Zewdie Birhanu<sup>2</sup>

Correspondence to Yohannes Addisu; [yohannes\\_24@yahoo.com](mailto:yohannes_24@yahoo.com)

1  
2  
3 **Abstract**  
4

5 **Objective:** To assess barriers to contraceptive use among high school students in Gedeo Zone,  
6 South Ethiopia, in 2021.  
7

8 **Design:** A grounded theory approach to the qualitative study was conducted between December  
9 2020 and April 2021 in Gedeo Zone, South Ethiopia.  
10

11 **Setting:** The study was conducted, in two urban and four rural schools, in Gedeo Zone; Gedeo  
12 Zone is one of the 14 Zones in the Southern Nations, Nationalities, and Peoples' Region of  
13 Ethiopia.  
14

15 **Participants:** The study involved 24 in-depth interviews with students and 28 key informants.  
16  
17 The interviews were conducted with students, school counselors, Kebele Youth association  
18 coordinators, Zonal child, Adolescent, and Youth officers, health workers, and Non-  
19 Governmental Organization workers.  
20

21 **Results:** The study's findings were organized into four major themes that explore contraceptive  
22 use barriers; these include; Individual related barriers such as knowledge, fear, and psychosocial  
23 development. Community-related barriers encompass fear of rumors, family pressure, social and  
24 cultural norms, economic vulnerability, and religious beliefs. Third, health service-related  
25 barriers include the lack of adolescent-responsive health services, health workers' behavior, and  
26 fear of health workers. Finally, the school and service integration barrier was identified.  
27

28 **Conclusions:** Adolescents' contraceptive use was affected by various barriers ranging from  
29 individual to multi-sectorial levels. Students note various barriers to using contraception and that,  
30 without contraception, sexual activity can lead to an increased risk for unintended pregnancy and  
31 its associated health risks.  
32

33 **Keywords:** Contraceptive barrier; Adolescents; Students; School; Ethiopia  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62

1  
2  
3 **63 Strengths and limitations of the study**  
4

5 64 As a formative study, the study was conducted with the assumption of subsequent intervention to  
6  
7 65 improve contraceptive use.

8  
9 66 It exclusively considers adolescents who are still in school.  
10  
11  
12 67  
13  
14 68  
15  
16  
17 69  
18  
19 70  
20  
21  
22 71  
23  
24 72  
25  
26  
27 73  
28  
29 74  
30  
31  
32 75  
33  
34 76  
35  
36  
37 77  
38  
39 78  
40  
41  
42 79  
43  
44 80  
45  
46  
47 81  
48  
49 82  
50  
51  
52 83  
53  
54 84  
55  
56  
57  
58  
59  
60

For peer review only

## 85 Background

86 Global developmental goals and strategies have recognized the importance of adolescents' health  
87 and rights [1-3]. One of the targets for Goal 3 of the United Nations Sustainable Development  
88 Goal (SDG) by 2030 is to ensure universal access to sexual and reproductive healthcare services,  
89 including modern contraceptive use, information and education, and the integration of  
90 reproductive health into national strategies and programs[4]. Currently, the largest-ever group of  
91 young people in history is becoming sexually active and therefore needs contraceptive utilization  
92 services [5]. On the other hand, adolescents' sexual and reproductive health (SRH) needs remain  
93 primarily unmet globally[6].

94 Access to SRH information determines the burden of adolescent pregnancies and unwanted  
95 pregnancies [7]. Worldwide, about 15% of unsafe abortions occur annually among girls under  
96 the age of 20 years. Early pregnancy and childbearing typically denote the end of formal  
97 education, expose the student to early marriage and restrict employment opportunities [8]. SRH  
98 issues, including unwanted pregnancies, remain a significant public health concern in sub-  
99 Saharan Africa [9].

100 Approximately 85 percent of sexually active adolescent girls who do not want to become  
101 pregnant do not use modern contraception [10]. Moreover, in most parts of the developing world,  
102 unmarried, sexually active adolescents who are not in a formal partnership require contraception,  
103 which is often unrecognized by their community; additionally, this population faces stigma and  
104 social condemnation if forced to use it [11] [12]. As a result, they are easily exposed to  
105 undesirable health and socioeconomic consequences such as unsafe abortion, high fertility,  
106 obstructed labor, complications such as obstetric fistula, and hypertensive disorders of pregnancy  
107 [13].

108 The importance of education on reproductive health in schools has been recognized in the  
109 sustainable development goals agenda to ensure that the necessary knowledge and skills in this  
110 area are acquired by all learners [14]. Schools are an appropriate setting in which to contribute to  
111 the development of healthy sexuality [15]. Studies showed that about forty percent of girls  
112 reported difficulties discussing sexual issues with their mothers due to fear and shyness [13, 16].

1  
2  
3 113 This problem calls for the use of effective strategies that engage and empower adolescent girls in  
4 114 the school setting about contraceptive use as they spend a significant amount of their time in a  
5 115 school setting parallel to this government of Ethiopia committed to improving the health status of  
6  
7 116 Ethiopian adolescent and students by increasing modern contraceptive prevalence rates (mCPR)  
8  
9 117 among those aged 15 -19 years[17] [18].

10  
11  
12 118 Access for adolescents to sexual and reproductive health services and comprehensive sex  
13  
14 119 education that is high quality, youth-friendly, and respects the right to confidentiality, privacy,  
15  
16 120 and informed consent remains a challenge in many countries[5]. In such circumstances,  
17  
18 121 designing programs in the school environment improves young people's decision-making and  
19  
20 122 negotiation skills, self-esteem, and reproductive health [19]. However, there is still insufficient  
21  
22 123 evidence in this regard. Thus this study examines barriers to contraceptive use among high  
23  
24 124 school students for program planning and interventions in Gedeo Zone, South Ethiopia.

## 125 **Method and Material**

### 126 **Study Setting and Period**

127 The study was conducted in Gedeo Zone. Gedeo Zone is located in the Southern Nations,  
128 Nationalities, and Peoples' Region of Ethiopia, with a population of 1,651,000 and a total  
129 household of 336,804. This makes it the most densely populated Zone in the Southern Region of  
130 Ethiopia. Currently, the Zone hosts a large population density of over 1300 people per km<sup>2</sup>.  
131 Dilla is the capital town of the Gedeo Zone, and it is located 362 km from Addis Ababa, the  
132 capital city of Ethiopia. Twenty-six senior secondary schools are in the Zone, with 24,445  
133 students attending the schools during the study period [20]. The study was conducted from  
134 December 2, 2020–to February 29, 2021.

### 135 **Study Design**

136 In this study, data were obtained from various sources based on the ground theory approach  
137 involving key informant interviews with health workers and in-depth interviews with students.  
138 Grounded theory is a suitable methodology when the researcher is keen to know the basic  
139 psychosocial process which occurs over time and explains changes in a particular behavior[21].  
140 The ground theory was chosen because it is suitable for guiding the development of essential  
141 data and themes inductively based on systematically obtained and analyzed data [21, 22].

142  
143



## 144 **Study Population**

145 The study population was made up of carefully selected students (who could actively engage in  
146 the school) who attended the assigned schools during the study period. Students were recruited  
147 from a variety of grades and schools. Gender and residence (rural vs. urban) were also  
148 considered in the selection process. In addition, healthcare experts from various fields (Health  
149 extension workers (HEWs), nurses, Public health officers, and Midwives) and clinical  
150 psychologists were included. Overall, the participants and data sources were chosen in stages to  
151 achieve the purpose of saturating ideas about the contraceptive use barrier. The study applied a  
152 purposive sampling technique for data collection.

## 153 **Data collection methods and procedures**

154 Data was gathered through in-depth interviews with students and key informant interviews with  
155 health professionals and others who are active in the community and have unique knowledge of a  
156 topic. Before data collection, the selected schools and health facilities were contacted to obtain  
157 permission to conduct the study. The participants in the study were contacted on the day of the  
158 interview. All the interviews and conversations took place in schools and healthcare settings, and  
159 no one else was present in the room during the interview except the participants and data  
160 collectors. The interview guide aided the interviews. The interview guides questions differ for in-  
161 depth interview and key informant interview. The content of the Interview guide question for the  
162 in-depth interview explore contraceptive knowledge, perception, communication pattern, and  
163 barrier to contraceptive use; on the other hand content of the key informant interview guide  
164 question explore the service pattern to students' contraceptive use, availability of Youth friendly  
165 service (YFS) with trained staffing, link of YFS with school and other sectors like a child,  
166 Adolescent, and Youth officers and barrier to contraceptive use. The interview guide holds an  
167 average of six main questions and subsequent one or more probing questions for each main  
168 question that help to explore and dig out the topic under study. An elicitation study was used for  
169 interview guide question formulation and questions from previous similar literature with some  
170 modifications[23, 24]. All interviews (between 30 and 91 minutes) were recorded using a digital  
171 voice recorder, and notes were taken during each interview. The number of interviews was  
172 dictated by category/theme saturation, which occurred when the research team observed similar  
173 responses from multiple respondents. In the context of this study, a barrier refers to anything that  
174 is regarded as an obstacle that prohibits contraceptive utilization.

### 175 **In-depth Interviews with Students**

176 In-depth interviews were conducted with a total of 24 students from the six schools included in  
177 the study. Students were sampled to ensure diversity in age (ranging from 15 to 19 years), sex  
178 (11 females and three males), and various grade level, which included (Range from grade ninth  
179 to twelve) and from social and natural science streams. Investigators conducted the interviews in  
180 Amharic language and transcribed them verbatim. The interviews were conducted in a private  
181 setting to ensure the privacy and comfort of the respondent.

### 182 **Key Informant Interviews-KII (In-depth Interviews with health staff)**

183 To triangulate the findings of interviews from students, a total of 28 health workers, of which 19  
184 were women and the rest 9 were men interviewed with purposively selected staff, at least three  
185 informants from each health facility. Consequently, Clinical Psychologists and diverse healthcare  
186 providers, including community health workers (CHWs), nurses, public health officers, and  
187 midwives, were included in the key informant interviews. Key informants were also purposively  
188 selected to ensure the diversity of experience. Moreover, about half of the key informants  
189 interviewed were trained and certified in contraceptive services or youth health. All were  
190 employed in the same catchment area as the study respondent.

### 191 **Data analysis**

192 The data from the interviews were transcribed verbatim and then translated into English for  
193 analysis. ATLAS.ti 7.1.4 aided in the coding and further analysis of the data. First, investigators  
194 read and reread the transcripts before assigning codes (open coding) and developing an initial  
195 coding structure. Then one coder performed iterative rounds of open coding on selected  
196 transcripts guided by the grounded theory approach to ensure that the coding structure was  
197 relevant and appropriate. In contrast, the second coder reviewed and verified the emergent codes.  
198 Finally, the study team analyzed the coded transcripts and generated codes to agree on the coding  
199 system and code definitions used to code all transcripts. The findings were organized into  
200 themes, categories, and subcategories based on important quotes. Finally, peer debriefing was  
201 held with the research team to find alternative explanations and to have formal or informal  
202 discussions with a peer to help interpret the data. For reporting qualitative findings, this study  
203 adheres to the Consolidated Criteria for Reporting Qualitative Research (COREQ) standard  
204 protocol[25].

## 205 **Data Validation**

206 Lincoln and Guba's criteria were used to maintain data validation [26]. In the beginning, the  
207 data collection tool (interview guide) was pre-tested on two KII and one IDIs Specifically, KII  
208 was conducted with health personnel trained on Youth friendly service, and IDIs was conducted  
209 with female secondary high school student. A studies assistant and the studies crew engaged in  
210 peer debriefing to establish trustworthiness. Following a dialogue with corporations of principal  
211 investigators, the tool was modified. To diversify the study participants, the adolescent  
212 interviewees and key informants were recruited based on socio-demographic characteristics  
213 (gender, age, education level, and occupation) to get a broader range of perspectives from  
214 various participants. A summary of significant themes was presented to study participants at the  
215 end of each data-collecting day, and a discussion was held to avoid confusing matters. To ensure  
216 member checking, the transcription and translation were given, as well as a synopsis of key  
217 themes and some perplexing concepts, so that they could check the interpretations and offer their  
218 comments, critiques, explanation, and confirmation. The study's final conclusion was shared with  
219 all participants to ensure that their ideas were appropriately reflected. Prolonged engagement,  
220 which has been achieved by staying in the research area for an extended period, was done. The  
221 principal investigator verified the points mentioned in the IDIs and KIIs throughout this time. In  
222 addition, we observed and confirmed various concerns, such as the public's impression of  
223 contraception, misconceptions about contraceptives, rumors about contraception, health  
224 professionals' attitudes regarding adolescent contraception use, and existing sociocultural  
225 expectations and norms about contraceptive use of adolescents were observed. To ensure  
226 transferability, the entire research process, participants' different viewpoints and experiences,  
227 methods, interpretation of results, and contributions of research assistants were all thickly  
228 described. Participants who contribute to the findings, interpretations, and recommendations  
229 ensure dependability. The findings of this study have been audited and confirmed with the aid of  
230 advisors, colleagues, and different individuals familiar with qualitative research. The findings  
231 have been correspondingly verified with the aid key informants like Health workers, school  
232 counselors, and students . Furthermore, every procedure became documented, and audio data and  
233 made to be had to look auditor researchers for cross-checking.

234

## 235 **Ethical Consideration**

236 Ethical approval of this study was obtained from the Institutional Review Board (IRB) of Jimma  
 237 University (Ref. No. IHRPG938/5/11/2020), and a permission letter was obtained from the Zonal  
 238 health bureau, Dilla town administrator, and school directors. In addition, written informed  
 239 consent and parental/guardians consent for participants were secured from all study participants.  
 240 After informed consent was sought from the adolescents and their parents, the data was collected  
 241 in a separate location to protect the participants' privacy.

## 242 **Result**

### 243 **Participants' demographic profile**

244 This study involved 24 in-depth interviews with students (grades 9 to 12) and 28 key informants  
 245 with health workers. The majority of study participants' religion was Protestant, followed by  
 246 Orthodox Christians in both in-depth interviews and key informants respondents. The students'  
 247 ages were between 15 and 19 years (mean 17.1). Health professionals from various backgrounds  
 248 participated in the key informant interview (Ten CHWs, Four nurses, four Public health officers,  
 249 seven midwives, one health promoter commissioned by a Non-governmental organization  
 250 (NGO) clinic, and Two Clinical psychologists). Almost half of the key informants' were trained  
 251 in contraceptive services or Youth health (Table1, 2).

252 **Table 1: Socio-demographic characteristics of in-depth interview respondents, Gedeo Zone,**  
 253 **Southern Nations, Nationalities and Peoples' Region, Ethiopia (N= 24 students)**

characteristics of respondents	Category	Frequency	Percent
<b>Age</b>	15	5	20.8
	16	3	12.6
	17	5	20.8
	18	6	25.0
	19	5	20.8
<b>Sex</b>	Female	18	75

	Male	6	25
<b>Residence</b>	Urban	10	41.7
	Rural	14	58.3
<b>Marital status</b>	Unmarried	19	79.2
	Married	5	20.8
<b>Education level</b>	9th grade	6	25.0
	10th grade	7	29.2
	11th grade	5	20.8
	12th grade	6	25.0
<b>Religion</b>	Protestant	13	54.2
	Orthodox	8	33.3
	Muslim	2	8.3
	Catholic	1	4.2

254 **Table 2: Socio-demographic characteristics key informant interview respondents, Gedeo**  
 255 **Zone, Southern Nations, Nationalities and Peoples' Region, Ethiopia (N= 28 health**  
 256 **workers)**

<b>characteristics of respondents</b>	<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
<b>Age</b>	23-29	7	25.0
	30-40	16	57.1
	41-50	5	17.9

<b>Sex</b>	Female	19	67.9
	Male	9	32.1
<b>Residence</b>	Urban	10	35.7
	Rural	18	64.3
<b>Marital status</b>	Unmarried	16	57.1
	Married	12	42.9
<b>Educational status</b>	Certificate	1	3.5
	Diploma	12	42.9
	Degree and above	15	53.6
<b>Religion</b>	Protestant	14	50.0
	Orthodox	10	35.8
	Muslim	2	7.1
	Catholic	2	7.1
<b>Profession</b>	Community health workers	10	35.7
	Nurses	4	14.3
	Public health officers	4	14.3
	Midwives	7	25.0
	Health Promoter	1	3.6
	Psychologists	2	7.1

257

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

258 **Themes and Category related to the study**

259 In this study, four themes were identified: Individual-related barriers, Community-related  
 260 barriers, Health Service barriers, and School and Service integration barriers (**Table 3**).

Major themes	Categories	Subcategories
Individual-related barriers	lack of knowledge	
	Fear	Fear of side effect
		Fear of being judged by family and friends.
Psychosocial development		
Community-related barriers	Fear of rumors	
	Family pressure	
	Social and cultural norms	
	Economical vulnerability	
	Religious beliefs	
Health service barriers	Lack of adolescent-responsive health services	
	Health workers behavior	
	Fear of health workers	
School and service integration barrier	Weak school and service Integration	

261 **Table 3. Emergent themes and categories of barriers to contraceptive use in the school set**  
 262 **up, in the study contexts, Gedeo Zone, Southern Nations, Nationalities and Peoples'**  
 263 **Region, Ethiopia, November 2021.**

265

266



267 Barriers to contraceptive use, namely Individual related barriers, Community-related barriers,  
268 Health service barriers, and School and service Integration barriers, were identified.  
269 Furthermore, details of the significant contraceptive barrier with categories and subcategories are  
270 described below.

### 271 **Individual related barriers**

272 The first theme in the current study was Individual-related barriers; under this theme, the  
273 categories identified were lack of knowledge, fear, and psycho-social development.

#### 274 **Lack of Knowledge**

275 In this study, one of the person-related barriers that influenced adolescents' contraceptive use was  
276 a lack of knowledge. Most key informants stated that students had limited knowledge of  
277 contraception due to a lack of opportunities to learn about reproductive health.

278 They also mentioned that some students, particularly those who live in rural areas, are unaware  
279 of the availability of contraceptive services.

280 *We usually weigh adolescent knowledge during counseling, and most lack knowledge about*  
281 *contraceptives. - (KII, Health worker).*

282 *Usually, adolescents do not relate sexual practice to pregnancy. In addition, they do not plan to*  
283 *use contraceptives proactively before pregnancy because they lack knowledge of contraceptive*  
284 *methods. - (KII, Health worker).*

285 Moreover, the current study showed that various misconceptions concerning contraceptives were  
286 widely explored in this study. For example, according to both categories of participants, a  
287 student who uses contraception is regarded as a deviant.

288 Similarly, concepts such as considering only condoms and post-pill as appropriate contraceptives  
289 used before marriage; having sex with a wide interval period does not expose to pregnancy;  
290 connecting condoms only with the prevention of sexually transmitted diseases such as  
291 HIV/AIDS rather than as a contraceptive; pregnancy could not happen again to someone who  
292 had a history of terminating the pregnancy, and perceiving use of medical abortion and post-pill  
293 redundantly as a normal thing was investigated. Furthermore, once a long-acting contraceptive  
294 has been used, they believe it is impossible to remove it whenever they wish to have a child.

295 *I do not use birth control. As a student and single woman, I believe no one has ever authorized*  
296 *me to use contraception. -17 year- old Student (IDI).*

297 *I went two years without using contraception when I was not pregnant, but then I became*  
298 *pregnant without it. I believe that it would always protect me once I started using it. -19 year-*  
299 *old Student (IDI).*

### 300 **Fear**

301 Fear was noted by nearly all student and health worker respondents as a critical barrier to  
302 utilizing contraception. Fear was one category under the individual-related barrier that further  
303 subcategories into two fear of side effects and fear of being judged by family and friends.

304 **Fear of side effects:** Both categories of study participants indicated that students are afraid of  
305 infertility if they use hormonal contraceptives. Furthermore, many are concerned that  
306 contraceptives would alter their body's appearance, making them too thin or too obese, and  
307 inducing menstruation irregularities.

308 *I understand that contraceptives protect me from unplanned pregnancy for the time being, but I*  
309 *am concerned that when I marry, I will not be able to have children. -17 year- old Student (IDI).*

310 **Fear of being judged by family and friends:** Students fear being judged by their parents and  
311 friends if they take contraceptives like Implanon or oral tablets. According to the key informant  
312 participant, if they find out she uses contraception, they gossip about her and discriminate against  
313 her. They also mentioned that students are afraid of their parents, peers, and relationships  
314 because they may quarrel with their partners if they refuse to use contraceptives like condoms.  
315 They are obliged to accept risky traditional techniques like withdrawal.

316 *When I use hormonal contraceptives like depo and Implanon, it causes menstrual irregularity*  
317 *and spotting. I am afraid my parents will find out and question why my menstruation has become*  
318 *irregular. -19 year- old Student (IDI)*

319 *If her friends know that she uses contraceptives, they label her a naughty girl, so they*  
320 *discriminate against her, and everyone thinks she has an eccentric character. -17 year- old*  
321 *Student (IDI)*

## 322 **Psychosocial development**

323 One category identified as an individual label barrier in the current study was psychosocial  
324 development and contraceptive use. According to key informants' responses, students do not  
325 have regular sexual interaction and proceed to sex by mistake before planning to use  
326 contraception. Unwanted pregnancy is a good indicator that this group should begin using  
327 contraception.

328 Furthermore, students cannot form stable relationships owing to their mental development and  
329 age and do not intend to use contraception before sexual intercourse.

330 Adolescents do not want to take contraceptive measures regularly but want to go to health  
331 institutions regularly for abortion or emergency contraception and return to the cycle again and  
332 again. Furthermore, the key informant interviewee stated that teens do not want to attend  
333 contraception discussions. The reason for this was that they considered it was only an adult or  
334 married person's concern. As a result, they gossiped and had fun during the school discussion on  
335 reproductive health or felt shame or humiliated at home because they feared their parents.

336 *Students at this age are impulsive and want to try everything. They lose control when they have  
337 sex and become pregnant without realizing it. - (KII, Health worker).*

338 *Adolescents at this age are abused sexually and have no intention of using contraception since  
339 they are exposed to sexual activity hastily or unknowingly. - (KII, Health worker).*

## 340 **Theme: Community-related barriers**

341 The second theme in the current study was community-related barriers; under this theme, the  
342 categories identified were Fear rumors, Pressure from family, Social and cultural norms,  
343 Economic vulnerability, and Religious beliefs.

### 344 **Fear of rumors**

345 Both students and health professionals reported many rumors in the community that prohibited  
346 contraceptive use. Respondents worried that if they went to a health center, the community  
347 would suspect that they were there for abortion or contraceptive services.

348 Furthermore, the health professionals stated that because the public mind is already preoccupied  
349 with rumors, if they experience any problems after using contraception, they instantly associate it  
350 with contraception and request its removal or discontinue use.

351 *In the community, there are many rumors about long-acting contraceptives. For example, if a  
352 woman inserts IUCD into her uterus, it bursts out and jumps to her brain, causing significant*

353 *damage. On the other hand, if someone inserts Implanon, it disappears within the flash inside the*  
354 *body. - (KII, Health worker).*

355 *When my mother and our next-door neighbor discuss contraception, they almost always grumble*  
356 *about it. But, according to what I recall from their conversation, women who have contraception*  
357 *injected into their arms become sterile for the rest of their lives. -16 year- old Student (IDI).*

### 358 **Pressure from family**

359 According to current findings, the family pressure adolescents not to use contraceptives even if  
360 they want to use them. It is embarrassing for adolescents to use contraception because they are  
361 young, single, and live with family. Reflections from both categories of participants showed that  
362 adolescents are terrified of using Implanon and daily pills because their families will notice  
363 them. Moreover, they do not want to take Clint's cards home.

364 Both students and health professionals claimed that most adolescents use depo due to family  
365 pressure because it is not visible to anyone. Except for a few cases, families are generally  
366 resistant. They do not suspect their children are exposed to sexual practices, so they do not  
367 discuss contraception with their children or allow health professionals to teach them.

368 Furthermore, the health professionals explained that families believe that discussing  
369 contraception encourages their children to use contraception or implies that it allows them to  
370 practice sex indirectly. Students ascertained that the family had followed up to see if their  
371 menstruation had arrived. If there is an irregularity, they have inquired why this is happening. As  
372 a result, they provide unnecessary negative reinforcement.

373 *Because they (adolescents) are afraid of their families, most adolescents who receive*  
374 *contraception from our facility choose to leave their cards with us rather than take them home.*  
375 *Sometimes, we call to remind them when their schedule is due. - (KII, Health worker).*

### 376 **Social and cultural norms**

377 Another categories related to the community-level barrier to contraception use was social and  
378 cultural norms. According to most health personnel respondents, adolescents seeking  
379 contraception face social and cultural challenges.

380 *The community believes that students who live with their families and use contraception are*  
381 *deviant or unique. -15 year- old Student (IDI)*

1  
2  
3 382 *Adolescents who use contraceptives before marriage is considered indecent and experiences*  
4  
5 383 *multiple sexual practices. Therefore their chance of getting a husband decreases because*  
6  
7 384 *everybody perceives such adolescents as not pure. -19 year- old Student (IDI)*  
8

9 385 *One student has excellent manners and is seen as a role model. However, she becomes pregnant*  
10  
11 386 *unexpectedly, and she attempts suicide because she is too humiliated and ashamed to seek*  
12  
13 387 *emergency contraception - (KII, Health worker).*

### 14 388 **Economical Vulnerability**

15  
16 389 Other categories under community-level barrier was economical vulnerability, As reflections  
17  
18 390 from clinical psychologists and other health personnel participants indicated, some adolescents  
19  
20 391 may not use contraception to become pregnant to secure their relationship if their partner has a  
21  
22 392 job with a good wage. Furthermore, adolescents whose parents are impoverished or deceased  
23  
24 393 may engage in various activities to generate income to support themselves and other family  
25  
26 394 members. This condition may expose them to sexual abuse and unintentional sex without  
27  
28 395 planning to use contraception.

29 396 *I know an orphan female student who sells coffee on the street who was sexually molested and*  
30  
31 397 *became pregnant, so she came to the health post and asked me to give her a post-partum tablet. -*  
32  
33 398 *(KII, Health worker).*

### 34 399 **Religious Beliefs**

35 400 Religious beliefs, according to both kinds of study participants, are a barrier to contraceptive use  
36  
37 401 since practically everyone in the study area values religious beliefs and advocates for abstinence  
38  
39 402 before marriage and views contraception as a bad thing. Moreover, adolescents who desire  
40  
41 403 contraception before marriage are regarded as sinful and repulsive.

42 404 It is assumed that every adolescent should be a role model for others, and using contraception at  
43  
44 405 such a young age is a sign of a bad girl and a sin in God's eyes.

45 406 *Those adolescents who have married resist contraceptive use. They mentioned that if God gives*  
46  
47 407 *them a child, why do they resist God's gift and use contraceptives to prevent pregnancy? (KII,*  
48  
49 408 *Health worker).*

50 409

51 410

52 411

53 412

1  
2  
3 413 **Theme: Health Service -related barriers**

4 414 Health Service related barriers are divided into three categories: Lack of adolescent-responsive  
5 health services, Health worker behavior, and fear of health workers.  
6  
7

8 416 **Lack of adolescent-responsive health service**

9  
10 417 The health care providers ascertained that health centers lack a structured approach to serve  
11 students' sexual and reproductive health needs. Family planning is provided to all age groups  
12 within the maternity and child health department (MCH) without segmentation.  
13  
14

15 420 Moreover, adolescents do not know where to find contraceptives after they arrive at health  
16 facilities. There is also a lack of a clear and fluid system that allows adolescent reproductive  
17 health services through referrals from health posts, schools, and non-governmental organizations  
18 to focal Youth-friendly services (YFS) or health facilities.  
19  
20  
21  
22

23 424 Furthermore, according to the health personnel report, in most health centers, obtaining a card  
24 from the card room is required to get any health service, including family planning, which  
25 involves bureaucracy, such as standing in a lengthy line in the corridor.  
26  
27  
28

29 427 In addition, the number of YFS available in the study area is minimal; it is not integrated with  
30 existing primary and referral care systems such as schools, health centers, and health posts; and it  
31 does not address the growing contraceptive demand of adolescents. A student does not mention  
32 even the few available YFS as YFS, which needs better communication. As a result, most  
33 adolescents need to learn where it is located and what kind of service it delivers.  
34  
35  
36  
37

38 432 *There is no separate room for family planning in the health center and health post for*  
39 *adolescents, but it is given in the health department for mother and child; most health workers*  
40 *do not take special training for the care of adolescents. Moreover, in an urban setting, health*  
41 *posts and Kebele (public department) deliver service in the same building; these things cause*  
42 *serious discomfort to young people thinking about using contraception. - (KII, Health worker).*  
43  
44  
45  
46  
47

48 437 *Youth-friendly service is not equally visible, and it is the most ignored area through program*  
49 *deliberation and allocation of resources; Even if adolescent and reproductive health is one*  
50 *package among health extension programs, it gets less attention than the mother and child*  
51 *health program. - (KII, Health worker).*  
52  
53  
54  
55

56 441



### 442 **Health Workers behavior**

443 According to key informants' reports, critical masses of healthcare personnel are not well  
444 equipped to serve adolescents. In addition, the healthcare workers believe that the student is not  
445 eligible for contraceptive services, so they somehow confront the student to avoid receiving the  
446 service they demand in a health facility.

447 *Counseling should be friendly; if we treat students like family, they will open up and tell us*  
448 *everything about themselves without fear; additionally, a positive approach and counseling will*  
449 *increase contraceptive use compliance. - (KII, Health worker).*

450 *We need more human resources because, despite working on 16 packages of health extension*  
451 *programs, we do not apply our efforts to adolescent reproductive health as boldly as we do to*  
452 *maternity, child, and immunization service. - (KII, Health worker).*

### 453 **Fear of Health Workers**

454 Both students and health professionals' reported that students fear health professionals since  
455 most are unpleasant and judgmental and may-divulge information to their parents. Consequently,  
456 adolescents want to leave the health center as soon as they take contraception or without it. They  
457 even deny having sex until a laboratory test confirms that they are pregnant because they fear  
458 health workers.

459 *By the way, I have never seen an adolescent come straight to the health center and ask for*  
460 *contraceptives because they are afraid that even those that come to health facilities will have*  
461 *difficulties articulating and shaking to ask for contraceptive services. - (KII, Health worker).*

462 *In a situation where adolescents arrive at a healthcare facility and are confronted by staff they*  
463 *know or their family, the situation gets worse; they feel panic and usually flee without using the*  
464 *contraceptive they intend to take. -18 year- old Student (IDI).*

### 465 **Theme: School and Service Integration**

466 Finally, the significant number of respondents (health workers) in the current study revealed that  
467 weak School and Service Integration was one major category identified under School and  
468 Service Integration barrier. Contraceptive usage services for adolescents are provided in a  
469 fragmented and non-standardized manner across organizations. Even if they serve the same  
470 group, they function separately.



1  
2  
3 471 Furthermore, community healthcare facilities need to provide the necessary leadership and  
4 472 information management system to assist students in forming synergistic actions with other  
5 473 sectors such as schools, sports and youth affairs, youth and women associations, media, and  
6 474 nongovernmental organizations. In addition, school-based continuous education, in which health  
7 475 experts are invited and participate, is yet to be implemented. Similarly, student reproductive  
8 476 health topic is not addressed in the school setup.

9 477 *A shaky framework connects the Health Center with the school and other sectors to promote*  
10 478 *adolescent reproductive health. - (KII, Health worker).*

### 11 479 **Discussion**

12 480 This study explored students' contraceptive usage barriers as a baseline for program planning and  
13 481 interventions in Gedeo Zone Secondary School, South Ethiopia. Accordingly, the study showed  
14 482 that students have multiple barriers to contraceptive use, namely Individual related barriers,  
15 483 Community-related barriers, Health Service barriers, and School and Service integration barriers.  
16 484 According to research from Ethiopia, Zimbabwe, and Tanzania, poor knowledge was perceived  
17 485 as a significant barrier to contraceptive use [24, 27, 28]. Furthermore, the lack of reproductive  
18 486 health education at school was the cause of students' lack of knowledge. This indicates that a  
19 487 health communication strategy should be developed, and school-based awareness-raising actions  
20 488 should be implemented.

21 489 Furthermore, student reproductive health interventions need to receive adequate attention in the  
22 490 school curriculum and other school club activities; linking students with health facilities and  
23 491 YFS can help students better understand contraceptive methods; significantly improve their  
24 492 knowledge and misconception.

25 493 According to the current study, fear is one of the adolescents' most prominent obstacles to  
26 494 contraception use. This was supported by a study conducted in rural Ghana[29]. As a result, the  
27 495 intervention should include messages encouraging adolescents to have free discussions on SRH  
28 496 topics, including contraceptive use. Adolescents face difficulty discussing modern contraceptives  
29 497 with their parents. This finding is similar to a study conducted in Zimbabwe and Nigeria[11]  
30 498 [12].

31 499 Teachers may also avoid providing sexual and reproductive health content as they do not feel  
32 500 uncomfortable discussing and teaching the material. Thus, enhancing the capacity of teachers,

1  
2  
3 501 and parents is very important. On top of this, adolescent boys often see contraceptive use as the  
4 502 girl's responsibility[29]. Thus, providing comprehensive sex education at school with trained  
5 503 personnel is needed; in addition, service integration with the school facilitates contraceptive  
6 504 utilization by the student. In the current study, psychosocial development was one barrier to  
7 505 using contraceptives. This finding is supported by a study conducted in Zimbabwe[30], as  
8 506 adolescents are immature, have reduced impulse control, and are less able to plan and use  
9 507 contraceptives than adults. Usually, this group is a neglected group. Even if they are exposed to  
10 508 sexual practices, which eventually lead to unintended pregnancy, miscarriage, and many other  
11 509 problems, medical institutions do not consider them eligible to use contraceptives [31].  
12 510 Furthermore, adolescents' contraceptive use, negotiation, and relationship skills are not fully  
13 511 developed[32]. The intervention in the form of a prototype audience and a group discussion by  
14 512 bringing up a specific scenario of a metaphor in the classroom makes the stated gap smoother.

15  
16  
17 513 In this study, students believe that contraception is only available to adults who are married and  
18 514 that the only contraception available to adolescents is the post-pill and condom, similar to a study  
19 515 done in Zimbabwe[30]. As a result, adolescents who use contraceptives other than the above are  
20 516 seen as unique and deviant and associated the user with promiscuity and straying, similar to  
21 517 research conducted in Thailand and Kenya [33, 34]. Students prefer post-pill tablets since they  
22 518 are easy to ingest and readily available; however, a case study in India [35] shows that frequent  
23 519 emergency contraception has a significant negative health impact, including ectopic pregnancy.  
24 520 Similar to this, just as it is relatively easy to terminate a pregnancy after the initiation of medical  
25 521 abortion, this phenomenon has contributed as a barrier to contraceptive use. Thus, we must  
26 522 address these misconceptions through drama, poetry, and key message preparation and reading to  
27 523 students during morning flag hour or before or after drama portrayal and other sessions.

28  
29  
30 524 The current study discovered that numerous rumors are already embedded in the community's  
31 525 mind and may act as a barrier to contraceptive use, consistent with research conducted in Kenya,  
32 526 Ghana, and India [9, 33, 36]. However, it should be noted that only some methods are suitable  
33 527 for all adolescents. In addition, it implies that we should address each rumor through drama,  
34 528 poetry, role play, and individual or group counseling.

35  
36  
37 529 Furthermore, community norms, socio-cultural expectations, and contradictions prohibit  
38 530 contraceptive use among the study population. Since the community has a considerable value on

1  
2  
3 531 preserving virginity until marriage, it is challenging to teach about contraception through  
4 532 community channels like community dialogue, similar to a study conducted in Nicaraguan and  
5 533 low-and middle-income countries [37, 38]. As a result, we must consider several alternatives to  
6 534 community-level intervention, such as school, which is relatively under lower influence from  
7 535 religious leaders, community members, and parental pressure.

8  
9  
10  
11 536 Finally, this study highlights the lack of adolescent contraceptive capacity building across many  
12 537 sectors, including health care facilities, schools, sports, and youth affairs, youth and women  
13 538 associations, media, and non-governmental organizations as a study supported by research from  
14 539 Guinea, northern Ethiopia, Ghana, and Bangladesh [9, 39-41]. As a result, Multi-Sectorial  
15 540 integration and involvement can help to overcome the obstacle and increase the uptake of  
16 541 contraceptive use.

17 542 **Limitation,** The limitation of the current study was that it did not consider adolescents outside of  
18 543 the school setting, and focus group discussions were not applied due to the sensitive nature of the  
19 544 studied topic. In addition, only a small sample of boys was included in this study since they  
20 545 showed less interest in the interview and were interrupted.

21 546 **Implications,** The current study shows that adolescents should have SRH services integrated  
22 547 with other sectors, such as schools and youth organizations, social welfare, and the media.  
23 548 Furthermore, enhancing the capacity building of health workers, teachers, and parents and  
24 549 working with an organization that works on this target population is very necessary. Finally, it is  
25 550 crucial to list and identify the significant barrier to contraceptives by adolescents and devise a  
26 551 strategy to address these barriers through multiple methods and approaches as indicated above.

## 27 552 **Conclusion**

28  
29 553 Adolescents' contraceptive use was affected by various barriers ranging from the individual level  
30 554 up to the multi-sectorial level. Students note various barriers to using contraception and that,  
31 555 without contraception, sexual activity can lead to an increased risk for unintended pregnancy and  
32 556 its associated health risks. Moreover, there is a need for SRH integration at the school level and  
33 557 work on the barrier that influences contraceptive use across all levels of influence.

## 34 558 **Author affiliations**

35 559 <sup>1\*</sup> Department of Health, Behavior, and Society, College of Health Sciences and Medicine, Dilla  
36 560 University, Dilla, Ethiopia.

561 <sup>2</sup>Department of Health, Behavior, and Society, Institute of Health, Jimma University, Jimma,  
562 Ethiopia.

563 <sup>3</sup>Department of Population and Family Health, Institute of Health, Jimma University, Jimma,  
564 Ethiopia.

565 **Acknowledgments** The authors would like to acknowledge the Institute of Health, Jimma  
566 University, and Dilla University for funding the study. The authors are also grateful to the study  
567 participants for their dedicated time and volunteer participation.

568 **Contributors** YA was involved in the conception, design, data collection, and analyses; wrote  
569 the draft of the paper. ZB and GT were involved in the design and analyses. All authors were  
570 involved in report writing and interpretation; reviewed the study and drafts of the manuscript,  
571 read and approved the final manuscript, and agreed to the submission.

572 **Funding** The study was funded by Jimma University, the Institute of Health, and Dilla  
573 University.

574 **Competing interests** none declared.

575 **Patient consent for publication** is not required

576 **Ethics approval** Ethical approval was obtained from the Institutional Review Board of Jimma  
577 University (Ref. No. IHRPG995/20/11/2020).

578 **Provenance and peer review** Not commissioned; externally peer-reviewed.

579 **Data availability statement** Data are available upon reasonable request.

## 580 Reference

- 581 1. Kuruvilla, S., et al., *The Global strategy for women's, children's and adolescents' health (2016–*  
582 *2030): a roadmap based on evidence and country experience*. 2016. **94**(5): p. 398.
- 583 2. Nations, U.J.N.Y.U.N., Department of Economic and S. Affairs, *Transforming our world: The 2030*  
584 *agenda for sustainable development*. 2015.
- 585 3. Sheehan, P., et al., *Building the foundations for sustainable development: a case for global*  
586 *investment in the capabilities of adolescents*. 2017. **390**(10104): p. 1792-1806.
- 587 4. Judd, A., *Sustainable development goal 3: ensure healthy lives and promote wellbeing for all at*  
588 *all ages*. 2020.
- 589 5. Braeken, D., I.J.I.J.o.G. Rondinelli, and Obstetrics, *Sexual and reproductive health needs of young*  
590 *people: matching needs with systems*. 2012. **119**: p. S60-S63.
- 591 6. Casey, S.E., et al., *Contraceptive use among adolescent and young women in North and South*  
592 *Kivu, Democratic Republic of the Congo: a cross-sectional population-based survey*. 2020. **17**(3):  
593 p. e1003086.

- 1  
2  
3 594 7. Darroch, J.E., et al., *Adding it up: costs and benefits of meeting the contraceptive needs of*  
4 595 *adolescents*. 2016.
- 5 596 8. Starrs, A.M., et al., *Accelerate progress—sexual and reproductive health and rights for all: report*  
6 597 *of the Guttmacher–Lancet Commission*. 2018. **391**(10140): p. 2642-2692.
- 7 598 9. Dioubaté, N., et al., *Barriers to contraceptive use among urban adolescents and youth in*  
8 599 *Conakry, Guinea*. 2021. **2**: p. 42.
- 10 600 10. AbouZahr, C.J.B.m.b., *Global burden of maternal death and disability*. 2003. **67**(1): p. 1-11.
- 11 601 11. Remez, L., V. Woog, and M.J.I.i.B. Mhloyi, *Sexual and Reproductive Health Needs of Adolescents*  
12 602 *in Zimbabwe*. 2014(3): p. 1-8.
- 13 603 12. Macquarrie, K., *Unmet Need for Family Planning Among Young Women: Levels and Trends. DHS*  
14 604 *Comparative Reports No. 34. Rockville, MD: ICF International; 2014*. 2018.
- 15 605 13. ADENIJI, O.I., *KNOWLEDGE AND USE OF EMERGENCY CONTRACEPTIVES AMONG OUT-OF-*  
16 606 *SCHOOL FEMALE YOUTHS IN IDO LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA*. 2013.
- 17 607 14. Joseph, N., et al., *Experiences and perception towards reproductive health education among*  
18 608 *secondary school teachers in South India*. 2021. **18**(1): p. 1-10.
- 19 609 15. Birdthistle, I. and C. Vince-Whitman, *Reproductive health programs for young adults: school-*  
20 610 *based programs*. 1997: Pathfinder International, Focus on Young Adults Project.
- 21 611 16. McCleary-Sills, A.W., K. Stobenau, and G.J.W.D.I. Hollingworth, *Understanding the adolescent*  
22 612 *family planning evidence base*. 2014.
- 23 613 17. Coyle, K., et al., *Safer choices: reducing teen pregnancy, HIV, and STDs*. Public health reports,  
24 614 2001. **116**(Suppl 1): p. 82.
- 25 615 18. Teshome, L., et al., *Modern contraceptives use and associated factors among adolescents and*  
26 616 *youth in Ethiopia*. Ethiopian Journal of Health Development, 2021. **35**(5).
- 27 617 19. Mason-Jones, A.J., et al., *Can peer education make a difference? Evaluation of a South African*  
28 618 *adolescent peer education program to promote sexual and reproductive health*. 2011. **15**(8): p.  
29 619 1605-1611.
- 30 620 20. Molla, E., et al., *Past eight-year malaria data in Gedeo zone, southern Ethiopia: trend, reporting-*  
31 621 *quality, spatiotemporal distribution, and association with socio-demographic and meteorological*  
32 622 *variables*. 2021. **21**(1): p. 1-15.
- 33 623 21. Roudsari, R.L., T. Khadivzadeh, and M. Bahrami, *A grounded theory approach to understand the*  
34 624 *process of decision making on fertility control methods in urban society of Mashhad, Iran*. Iranian  
35 625 *journal of nursing and midwifery research*, 2013. **18**(5): p. 408.
- 36 626 22. Noone, J., *The process of contraceptive decision-making in women: Using a feminist grounded*  
37 627 *theory approach*. 2003: University of Hawai'i at Manoa.
- 38 628 23. The DHS Program ICF Rockville, M., USA Central Statistical Agency Addis Ababa., *<EDHS-*  
39 629 *2016.pdf>*. 2016.
- 40 630 24. Melaku, Y.A., et al., *Sexual and reproductive health communication and awareness of*  
41 631 *contraceptive methods among secondary school female students, northern Ethiopia: a cross-*  
42 632 *sectional study*. BMC public health, 2014. **14**(1): p. 1-11.
- 43 633 25. Allison, T., S. Peter, and C.J.R.I.Q.A.S. Jonathan, *Cr terios consolidados para relato de pesquisa*  
44 634 *qualitativa (COREQ): lista de verifica  o de 32 itens para entrevista e grupos focais*. 2017. **19**: p.  
45 635 349-357.
- 46 636 26. Guba, E.G. and Y.S.J.H.o.q.r. Lincoln, *Competing paradigms in qualitative research*. 1994. **2**(163-  
47 637 194): p. 105.
- 48 638 27. Moyo, S. and O. Rusinga, *Contraceptives: adolescents' knowledge, attitudes and practices. A*  
49 639 *case study of rural Mhondoro-Ngezi district, Zimbabwe*. African journal of reproductive health,  
50 640 2017. **21**(1): p. 49-63.



- 1  
2  
3 641 28. Nsanya, M.K., et al., *Modern contraceptive use among sexually active women aged 15–19 years*  
4 642 *in North-Western Tanzania: results from the Adolescent 360 (A360) baseline survey*. BMJ open,  
5 643 2019. **9**(8): p. e030485.  
6 644 29. Adjei, G., et al., *Predictors of abortions in rural Ghana: a cross-sectional study*. 2015. **15**(1): p. 1-  
7 645 7.  
8 646 30. Moyo, S. and O.J.A.j.o.r.h. Rusinga, *Contraceptives: adolescents' knowledge, attitudes and*  
9 647 *practices. A case study of rural Mhondoro-Ngezi district, Zimbabwe*. 2017. **21**(1): p. 49-63.  
10 648 31. Ekstrand, M., et al., *Preventing pregnancy: a girls' issue. Seventeen-year-old Swedish boys'*  
11 649 *perceptions on abortion, reproduction and use of contraception*. 2007. **12**(2): p. 111-118.  
12 650 32. Chanthasukh, S., S. Andajani, and T.P. Fairbairn-Dunlop. *Influencing Factors towards Thai*  
13 651 *Adolescents' Decision Making on Contraceptive Use: Preliminary Results*. in *13th International*  
14 652 *Conference on Thai Studies "Globalized Thailand? Connectivity, Conflict and Conundrums of Thai*  
15 653 *Studies"*. 2017.  
16 654 33. Ochako, R., et al., *Barriers to modern contraceptive methods uptake among young women in*  
17 655 *Kenya: a qualitative study*. 2015. **15**(1): p. 1-9.  
18 656 34. Shah, C., V. Solanki, and H.J.T.A.m.j. Mehta, *Attitudes of adolescent girls towards contraceptive*  
19 657 *methods*. 2011. **4**(1): p. 43.  
20 658 35. Sharma, S., et al., *Emergency Contraception and Ectopic Pregnancy: Report of 2 Cases of Young*  
21 659 *Unmarried Girls-A Cause of Concern*. 2015. **5**(3): p. 260-263.  
22 660 36. Gyesaw, N.Y.K. and A.J.I.j.o.w.s.h. Ankomah, *Experiences of pregnancy and motherhood among*  
23 661 *teenage mothers in a suburb of Accra, Ghana: a qualitative study*. 2013. **5**: p. 773.  
24 662 37. Coll, C.d.V.N., et al., *Contraception in adolescence: the influence of parity and marital status on*  
25 663 *contraceptive use in 73 low-and middle-income countries*. 2019. **16**(1): p. 1-12.  
26 664 38. Nalwadda, G., et al., *Persistent high fertility in Uganda: young people recount obstacles and*  
27 665 *enabling factors to use of contraceptives*. 2010. **10**(1): p. 1-13.  
28 666 39. Melaku, Y.A., et al., *Sexual and reproductive health communication and awareness of*  
29 667 *contraceptive methods among secondary school female students, northern Ethiopia: a cross-*  
30 668 *sectional study*. 2014. **14**(1): p. 1-11.  
31 669 40. Shahabuddin, A., et al., *What influences adolescent girls' decision-making regarding*  
32 670 *contraceptive methods use and childbearing? A qualitative exploratory study in Rangpur District,*  
33 671 *Bangladesh*. 2016. **11**(6): p. e0157664.  
34 672 41. Parker, J., et al., *Barriers to contraceptive use among adolescents in two semi-rural Nicaraguan*  
35 673 *communities*. 2020. **32**(5).  
36  
37  
38  
39  
40  
41 674  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60