Determinants of adolescents’ contraceptive uptake in Ethiopia: a systematic review of literature

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Abstract

Introduction: Various studies have identified different factors that affect adolescent contraceptive uptake in different parts of Ethiopia. However, varying results were reported across primary studies and those results need to be systematically collated to inform policies. Therefore, this systematic review aimed to synthesize the findings of those primary studies to obtain more robust and representative evidence about adolescent contraceptive uptake in Ethiopia.

Methods: Five databases (MEDLINE via PubMed, Google Scholar, Scopus, Science Direct and CINAHL) were searched for papers published from January 2000 up to June 2021 in English. We limited our search to start on January 2000 as the health of adolescents have been given more attention after this period and to avoid time-lapsed biases. Seven studies were included in this systematic review. We used the Newcastle-Ottawa Scale and the Mixed Methods Appraisal Tool for quality assessment of the selected studies.

Results: Determinants of adolescent contraceptive utilization were focused on four levels: individual, socio-cultural, healthcare service and knowledge related factors. Individual-related factors that influence adolescents' contraceptive uptake include; being in the age group of 10–15 years, not currently enrolled in school and being from low-income families, while socio-cultural factors include: lack of discussion with family members, arranged marriage, pressure from a partner, harmful traditional practices, discussion with peer groups and sexual partners. Healthcare service-related factors include; lack of information about contraceptives during health facility visits, lack of privacy during service provision and inconvenient service hours at health facilities, and not visiting health facilities, whereas, knowledge related factors include; having knowledge of contraceptive methods and being heard about contraceptives from media. Also, the proportion of adolescent contraceptive uptake ranged from 12 to 79%.

Conclusions: In this systematic, individual, socio-cultural, health-care-related, and knowledge-related characteristics have all been identified as influencing adolescents' contraceptive uptake in Ethiopia. Hence, integrated interventions aimed at overcoming barriers to adolescent contraceptive uptake would be beneficial to improving adolescent contraceptive utilization in Ethiopia.

Keywords: Adolescents, Contraceptives, Review, Ethiopia

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and psychosocial changes [1, 2]. Adolescents are sexually active during this time of transition, and they have unique needs for sexual and reproductive health (SRH) [1, 3]. Every year an estimated 16 million adolescents give birth, of which 95% of deliveries occur in developing countries [4]. In Ethiopia, 13.6% adolescent women had a child or were currently pregnant [5].

Many adolescents have been found to engage in unsafe sex, which can lead to an unintended pregnancy, an unsafe abortion, or teenage pregnancy, which further constitutes the leading cause of preventable adolescent mortality and morbidity [6–8]. Furthermore, the health of the newborn from adolescent women is also at risk of being preterm and low-birth-weight and is prone to neonatal death [9–13]. According to the recent studies, female adolescents who engaged in unsafe sex were more likely to die as compared to female adults. This is because adolescents have immature reproductive organs or lack of access and poor utilization of contraception [2, 5]. When adolescents have restricted access to contraceptives, their wellbeing and autonomy could also be deprived [11]. Adolescents who are unable to make an informed decision about their pregnancy could have a negative consequence [5]. Since they frequently lack the financial resources to care for their newborn, they dropped attending school [9, 10]. Despite the fact that many other factors also played a role in the low uptake of contraceptive methods, the main factors that influence adolescents from using contraceptives were anticipated stigma due to social norms and negative beliefs about contraception [6], fear of being seen by others and embracement in seeking contraceptives [14].

Ethiopia has made considerable efforts on family planning programs over the past 20 years and the commodities are free of charges in all health facilities [15]. The national modern contraceptive prevalence rate increased encouragingly from 8% in 2000 to 36% in 2016 [16]. Despite these efforts, the national unmet need for modern contraceptive were reported to be 22%, which was lower than the global FP targets [16]. This is likely because adolescents, the largest segment of the population in Ethiopia, are excluded from FP intervention initiatives [17, 18]. Primary healthcare units has not been tied enough to deliver ideal contraceptive services for the majority of adolescents, as a result, their needs for contraception are frequently ignored [19–21].

A number of studies have reported different factors that affect adolescent contraceptive uptake in different parts of the country [22–28]. However, these studies are not consistent in terms of size, scope and geographic coverage. Additionally, varying results were stated across individual studies and these results need to be systematically collated so that easy to inform policies. Therefore, this systematic review aimed to synthesize the findings of these primary studies to obtain more robust and representative evidence about adolescents’ contraceptive uptake in Ethiopia.

**Main text**

**Search strategy**

We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [29] to answer the research questions: what are the determinants of adolescents’ contraceptive uptake in Ethiopia? Five databases (MEDLINE via PubMed, Google Scholar, Scopus, Science Direct and CINAHL) were searched for papers published from January 2000 up to June 2021 in English. We limited our search to start on January 2000 as the health of adolescents have been given more attention after this period and to avoid time-lapsed biases. The search was supplemented by hand searching. A broad search was purposefully conducted to confirm all papers would be retrieved.

The following search terms were employed to search for articles from major databases mentioned above: social OR cultural OR demographic AND determinants OR factors OR barriers AND adolescents OR teenage AND family planning OR contraceptive AND uptake OR utilization OR use AND Ethiopia. As indicated above, alternative keywords were combined using the Boolean operator ‘OR’ to ensure all possible variations were captured; the search has then combined with ‘AND’ to narrow the search. The following limits were applied: English, full text online, and published between January 2000 and June 2021. We also limited our search to peer-reviewed literature as it guarantees quality checks.

**Inclusion and exclusion criteria**

Papers were included if they were primary studies of cross-sectional, case-control, cohort, mixed-method and qualitative studies; had a focus on adolescent family planning or contraception; were published in English from January 2000 to June 2021; were available in full text online, and conducted in Ethiopia. Papers were excluded if they included youths (aged 15–24 years), systematic and traditional reviews.

**Data extraction**

Three reviewers (AGM, NSA and MAT) independently searched and screened the titles and abstracts against the inclusion/exclusion criteria. Articles found suitable by title and abstract were undergone for full-text review. All authors (AGM, DN, DBO, NSA and MAT) reviewed all of the full texts that were retrieved, and the data were extracted into a summary table. Disagreements at each step of screening were resolved through discussion. Authors, year of publication, study design and
setting, characteristics of participant (age group, study population and sample size), the proportion of contraceptive utilization were extracted. We collected data on the proportion of contraceptive uptake by adolescents, determinant variables of adolescent contraceptives and other main findings of the analysis of the included studies (Table 1).

Quality appraisal of the included studies
We used the Newcastle-Ottawa Scale (the most widely used guideline for reporting observational studies) [30] and the Mixed Methods Appraisal Tool (used for reporting qualitative and mixed methods studies) for quality assessment of the selected studies [31]. Each element of quality assessment was labelled as; 1—a criterion was met and 0—a criterion was not met. A study was considered a very good study when the sum of the criteria is 9–10, a good study when the sum of the criteria is 7–8, and satisfactory when the sum of the criteria is 5–6. All the included studies scored above 7 and are included in the analysis.

Results
Characteristics of included studies
Figure 1 shows a flowchart of the search and results. The initial search yielded 263 records and 43 duplicates were removed. Overall, 191 papers were removed after the screening of titles and abstracts against the inclusion/exclusion criteria. Of the 29 papers remaining, 27 were retrieved in full text and assessed against the inclusion/exclusion criteria; the full texts of the two papers could not be found despite our request to the corresponding authors through email (Fig. 1).

Another 21 papers were excluded in this step, and 6 papers met the inclusion criteria. The reference lists of the included papers were scanned to identify any additional papers which may not have been captured in the initial search: 1 paper was included and making 7 eligible studies for the final analysis. Of seven included papers, five studies were quantitative [22, 23, 25, 27, 28], one study was qualitative [24] and one study was a mixed-method approach [26].

Heterogeneity test and publication bias
The included studies were evaluated for heterogeneity and publication bias. Accordingly, the heterogeneity test showed considerable heterogeneity among studies and the true variability among the seven studies other than chance was 99.8% ($I^2 = 99.8\%$). The publication bias was checked by Egger’s test and the test shows no evidence of publication bias among included studies ($p = 0.281$) (Table 2). Due to the existence of considerable heterogeneity and true variability among the included studies, we decided to conduct literature review rather than meta-analysis.

Determinants of adolescents’ contraceptive uptake
We categorized the findings of the included studies into four thematic summaries based on their similarities. These determinants are related to individual, socio-cultural, knowledge about contraceptive methods and healthcare service-related factors (Fig. 2).

Individual-related factors
From seven studies that examined determinants of adolescent contraceptive uptake, educational status of adolescents was the main factor influencing the uptake of contraceptives as reported in three studies [22, 23, 27]. Adolescents whose age group is 10–15 years [26], those who are not currently enrolled in school [27], and those from low-income families [23] were less likely to use modern contraceptive methods.

Socio-cultural related factors
Socio-cultural related factors are the most commonly stated determinants of adolescent contraceptive uptake and are mentioned in six studies [22–27]. Discussion with family/relatives [22], being married [27], arranged marriages and partner approval [24], parent disapproval and pressure from partners [26] having a partner [27], harmful traditional practices [25], discussion with peer groups (friends) [22, 28], and with sexual partners and teachers [22] were reported as the most important determinants for adolescent contraceptive uptake.

Healthcare service-related factors
Healthcare service-related reasons that influence the uptake of contraceptives by adolescents were raised in three studies [23, 25, 28]. Lack of information about contraceptives during health facility visits [23], lack of access to SRH services for adolescents, lack of privacy and inconvenient service hour at health facilities [25], and not visiting health facilities [28] were negatively associated with adolescent contraceptive utilization.

Knowledge related factors
Having knowledge of contraceptive methods [28] and basic knowledge of SRH [26], and being heard about contraceptives from media [27] were knowledge related determinants of adolescent contraceptive uptake that were mentioned in three studies, and found to be positively associated with adolescent contraceptive utilization.
Table 1 Characteristics of the included studies June 2021

| Author                  | Year | Study Design                     | Study setting                                      | Participant Characteristics | Study population | Sample size | Proportion of contraceptive uptake | Reported factors influencing the uptake of adolescent contraceptive |
|-------------------------|------|----------------------------------|----------------------------------------------------|------------------------------|------------------|-------------|------------------------------------|-------------------------------------------------------------------|
| Feleke SA et al. [22]   | 2012 | Community-based cross-sectional study | Gondar town, Northwest Ethiopia                     | Age group 15–19              | Both male and female adolescents | 1290        | 79.5%                              | Educational status of adolescents, discussion with family/relatives, peer groups, sexual partners and teachers were significantly associated with FP service utilization. |
| Abajobir AA, Seme A [26]| 2014 | Community-based cross-sectional study | Machakel district, East-Gojam                       | Age group 10–19              | Both male and female adolescents | 415         | 21.5                               | Being in the age group of 10–15 years and lack of basic knowledge of SRH. Additionally, parent disapproval and pressure from partners deterred adolescents from using FP. |
| Hidata F et al. [28]    | 2015 | Institutional based cross-sectional study | Toke Kutaye Woreda, West Shoa zone                 | Age group 15–19              | Both male and female adolescents | 1076        | 40.3                               | Discussion with boyfriend or girlfriend and knowing of contraceptive methods were reported as factors of adolescent FP use. |
| Olika AK et al. [23]    | 2016 | Survey                           | Secondary analysis from a national survey           | Age group 15–19              | Female adolescents          | 504         | 39.6%                              | Wealth status of adolescents' families, educational status of adolescents and information about FP during their health facility visits were factors associated with contraceptive use. |
| Ansha MG et al. [25]    | 2017 | Community-based cross-sectional study | Anchar District, Eastern Ethiopia                   | Age group 15–19              | Both male and female adolescents | 402         | 39.3%                              | Lack of adolescent SRH services, harmful traditional practices, lack of privacy and inconvenient service hour were reasons for not utilizing FP among adolescents. Additionally, religious opposition, lack of knowledge of how to use contraceptive methods were reported as reasons. |
| Ketema H, Erulkar A [24]| 2018 | Qualitative study                 | Beneshangul-gumuz region                           | Age group 18–24              | Female adolescents          | 16          | NA                                 | The power dynamics within arranged marriages and partner approval were the biggest factors influencing adolescent FP use. |
| Author                  | Year | Study Design                      | Study setting | Participant Characteristics | Proportion of contraceptive uptake | Reported factors influencing the uptake of adolescent contraceptive |
|-------------------------|------|-----------------------------------|---------------|-----------------------------|-----------------------------------|---------------------------------------------------------------|
| Abebe HT et al. [27]    | 2020 | Community-based cross-sectional study | Tigray region | Age group 15–19, Study population Female adolescents, Sample size 1755 | 12.3                              | Being young age, educational level, attending school, being married, being informed about contraceptives through media, health facility visits, having a partner were the most important determinants for use of contraceptives |
The estimates of adolescents’ contraceptive uptake

The second aim of this review was to describe the proportion of adolescent contraceptive utilization in Ethiopia, by using proportions measured in primary studies. The percentage of the variability in effect estimates (heterogeneity) between the studies was assessed using the $I^2$ test. The results confirm that there is a statistical source of heterogeneity among the included studies in which the estimated points of each study are within the confidence interval of the pooled estimate. Since the included studies have a significant heterogeneity, the pooled proportion of adolescent contraceptive uptake may be less reliable, thus we simply describe the proportion of each study with its range. As a result, the proportion of adolescent contraceptive uptake varied in different parts of the country: 79% in Gondar town (95% CI = 77.82) [22], 21% in Machakel district (95% CI = 18, 26) [26], 40% in Toke Kutaye district (95% CI = 37.43) [28], 39% in Anchar district (95% CI = 35.44) [25], and 12% in Tigray region (95% CI = 11.14) [27].

Fig. 1 PRISMA diagram of the search process, June 2021
Discussions

We systematically reviewed the determinants of adolescent contraceptive uptake and described the proportion of contraceptive utilization in Ethiopia where adolescent contraceptive use remains very low [32]. Summarizing determinants of adolescents’ contraceptive utilization is critical for improving the well-being of the adolescent population, a population segment that is often underrepresented in most studies of modern contraception [27, 28]. The results in this review are based on seven primary studies that had been published within the last twenty years. Those included studies examined determinants of adolescent contraceptive uptake and reported its proportion in different parts of the country. We found that individual, socio-cultural, healthcare service and knowledge related factors were highlighted in the included studies as factors determining adolescent contraceptive uptake in Ethiopia.

In this review, the proportion of adolescent contraceptive uptake ranged from 12% [27] to 79% [22]. In line with our review, a mixed-effects multilevel analysis of data from 29 demographic and health surveys conducted in sub-Saharan Africa reported that, on average, 24.7% of adolescents utilized modern contraceptive methods [33]. Zhihui Li et al. in their review also reported that 31.6% of adolescent girls utilized modern contraceptives [34]. It can therefore be assumed that the proportion of adolescent contraceptive uptake still remains very low and needs integrated work to avoid unwanted adolescent pregnancies and the associated complications. This could be beneficial not only for adolescents but also their newborns and societies as a whole [32].

In this review, individual factors such as educational status of adolescents [22, 23, 27], being in the age group of 10–15 years [26], not currently enrolled in school [27] and being from low-income families [23] were less likely to use modern contraceptive methods. On the other hand, completing high school education and belonging to the highest wealth quintile families have more access to modern contraceptive information that can promote contraceptive use [13, 35]. Evidence also suggested that having a good education and an improved income status of adolescents can contribute to the improvement of contraceptive uptake by reducing gender inequality and promoting discussion with their partners or relatives, which in turn increase their utilization of contraceptive methods [12, 36]. It is also important to note that when adolescents are educated and have financial support from...
Consequently, it is important to make adolescents more informed of contraceptive methods and the additional health risks that they face during pregnancy. Despite its strength, this systematic review may have some limitations. This study is based only on published studies and important data might be missed from unpublished studies.

Conclusions
In this systematic, individual, socio-cultural, healthcare-related, and knowledge-related characteristics have all been identified as influencing adolescent contraceptive uptake in Ethiopia. Hence, integrated interventions aimed at overcoming barriers to adolescent contraceptive uptake would be beneficial to improving adolescent contraceptive utilization in Ethiopia.

Abbreviations
AOR: Adjusted Odds Ratio; CI: Confidence Interval; FP: Family Planning; NA: Not applicable; SRH: Sexual and Reproductive Health; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; WHO: World Health Organization.

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Authors’ contributions
AGM conceived and designed the study. AGM, DN and DBO developed the methodology and extracted the data. AGM, NSA and MAT checked the quality of the included studies, analyzed and interpreted the data. AGM, DN and DBO drafted and substantively revised the manuscript. All authors approved the submitted version of the manuscript and agreed to both be personally accountable for the author’s own contributions and to ensure that questions related to the accuracy or integrity of any part of the manuscript.

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All data generated/analyzed during this study are included in this published article. Besides, the raw datasets will be available from the corresponding author on a reasonable request.

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Competing interests
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