



MODERN CONTRACEPTIVE USE IN ADOLESCENT AND YOUNG WOMEN: A SYSTEMATIC LITERATURE REVIEW

Dian Nur Hadiani^{1,2*}, Kemal N Siregar¹, Risna Dewi Yanti^{1,2}, Farhati^{1,2}, Dermawan Supriatna³

¹) Faculty of Public Health Universitas Indonesia

²) Department of Midwifery, Poltekkes Kemenkes Bandung

³) Department of Administration, STIA Cimahi

Email: diannurhadiani80@gmail.com

Abstract

Introduction: Contraceptive use among married adolescents and young women is lower than in other age groups.

Objectives: The purpose of this systematic literature review is to determine the use of modern contraceptives in adolescents and young women.

Method: Three databases in English (Scopus, Pubmed, Science direct) published from January 2019 to March 2023 were used to identify publications describing the prevalence and predictors of contraceptive use in adolescents. This study involved adolescent and young women from any country.

Result: A total of 15 publications met the inclusion criteria. The prevalence of adolescents and young women using contraceptives ranges from 22.3 to 82.5%. However, the prevalence of modern contraceptive use is still low, around 6 to 27%. Predictor factors for contraceptive use include findings from studies that were included in four summarizations of the themes according to their commonalities. These determinants are related to sociodemographic factors, reproductive factors, individual factors, and health services.

Conclusion: Most of the predictors of contraceptive use among adolescents and young women in several countries are influenced by sociodemographic factors, individual factors, reproductive factors and health service factors. By knowing the predictor factors, we can increase the prevalence of contraceptive use among adolescents and young women, which can ultimately balance the birth rate.

Keywords: Adolescent, young women, contraceptive use, predictor

INTRODUCTION

Fertility at a young age can be an early warning of the threat of high fertility in general, because it will affect the potential for giving birth until the end of the reproductive period. If at a young age (early reproductive period) a woman is pregnant and gives birth, this means she will have the potential to become pregnant and give birth to more children until the end of her reproductive age.(1) Fertility rates are related to age at first marriage and age at birth. In 2021, 48.27% of teenagers married at the age of 19-24 years and 8.19% at the age of 7-15 years.(2) Marriage will affect birth. The world's birth rate for adolescent girls aged 10–14 years in 2022 is estimated at 1.5 per 1000 girls.(3) Meanwhile, the birth rate or Age-Specific Fertility Rate (ASFR) 15-19 in Indonesia in 2022 will reach 22.8 and

this figure has not yet reached the target of 21.(1) This means that in one year an average of 0.023 babies will be born 23 births for every 1000 women).(4)

Pregnancies that are too young, too many, too close and too old are one of the causes of the still high maternal mortality ratio (MMR) in Indonesia. One clear effort made to reduce MMR, prevent high-risk pregnancies and unwanted pregnancies is to set targets increasing for modern contraceptive prevalence rate (mCPR), and reducing ASFR from 15-19 years, as well as reducing the number of unmet needs.(1) In low- and middle-income countries (LMICs), adolescents between the ages of 15 and 19 are thought to be involved in 21 million pregnancies annually, of which roughly 50% are unplanned and result in an estimated 12 million births, with 55% ending in abortion.(3) As many as 8 million unwanted pregnancies or 9 out of 10 unwanted pregnancies can be prevented by using modern methods of contraceptive (MMC).(5)

Indonesia is the 3rd ranked country with the highest contraceptive prevalence rate (CPR) in ASEAN after Thailand and Vietnam in 2019, by 44.4%, this figure is still below the world average, by 48.5%(6). The rate of contraceptive / CPR use among married women in 2017 was 63.6%, and decreased in 2021 by 57.4%, this figure did not reach the target in 2021, by 62.12%.(7) In 2021, mCPR reached 57%, with ages 15-19 years being 43.8% and ages 20-24 years being 55.4.(8)

The health effects of these conditions include the increased risk of premature birth, low birth weight, and neonatal mortality associated with adolescent birth, as well as higher rates of postpartum depression and lower rates of breastfeeding. In addition, compared to older women between the ages of 20 and 24, young women are more likely to experience systemic infections, eclampsia, and puerperal endometritis.(5)

The purpose of this systematic literature review is to determine the use of modern contraceptives in adolescents and young women.

Research question:

1. What is the contraceptive prevalence rate (CPR) in adolescents and young woman in various countries?
2. What predictor factors influence contraceptive use in adolescents and young woman?

METHODS

Search strategy

We searched for journals between January 2016 and March 2023. Three databases in English (Scopus, PubMed, Science direct) were used to identify publications according to the research objectives and questions. Searches were adjusted based on Population, Exposure, Outcome and Study type (PEOS). We attach the results of a reference list search of relevant studies.

Keywords used for searching include contraceptive, adolescent, and predictors. Search terms used to search for articles from the database include adolescen*, "adolescen* girl*", "young women", "young people", teen*. Synonyms for predictors are determinants, factors. Meanwhile, the synonym for contracepti* is "family planning".

Alternative keywords are combined using the Boolean operator "OR" to ensure all possible variations are obtained, then combined with "AND" to narrow the search. The restrictions applied are English, full text, published January 2016 to March 2023.

Inclusion and exclusion criteria

The inclusion criteria for this study were articles that focused on female aged 15-24 years; articles explaining factors that influence contraceptive use. The exclusion criteria are studies in the form of literature studies.

Search outcome

There were 1307 articles collected, then a duplicate check was carried out, there were 234 articles which had to be merged because they were indicated as duplicates so that the number of articles after duplicates were removed was 1073. Next, the title and abstract were selected to obtain 161 articles which were in accordance with the population and concept of this review. The next stage is reading the full text, 142 articles. Then in the final stage the quality was assessed to meet the synthesis criteria for 15 articles. The PRISMA flow diagram, which is displayed in Figure 1, provides a detailed explanation of the selection phases.

Quality appraisal

Five researchers reviewed all selected articles and carried out critical assessments. The considerations used to determine the quality of articles entering the synthesis stage are sampling method, research method, study population, location, predictors, prevalence.

Article selection

Authors independently searched and screened titles and abstracts based on inclusion and exclusion criteria. Articles found that matched their titles and abstracts underwent full-text review, and their data were extracted into summary tables. Author, year of publication, study design, participant characteristics (age group, study population, sample size), proportion of contraceptive use were extracted i.e. determinant variables of contraceptive and other main findings.

Data synthesis

We present the findings by target group and kind of intervention, with a focus on participants across generations. Findings regarding contraceptive membership are summarized narratively and in summary tables.

PRISMA reporting requirements were adhered to in this review, with the exception of bias variables that were not methodically evaluated.

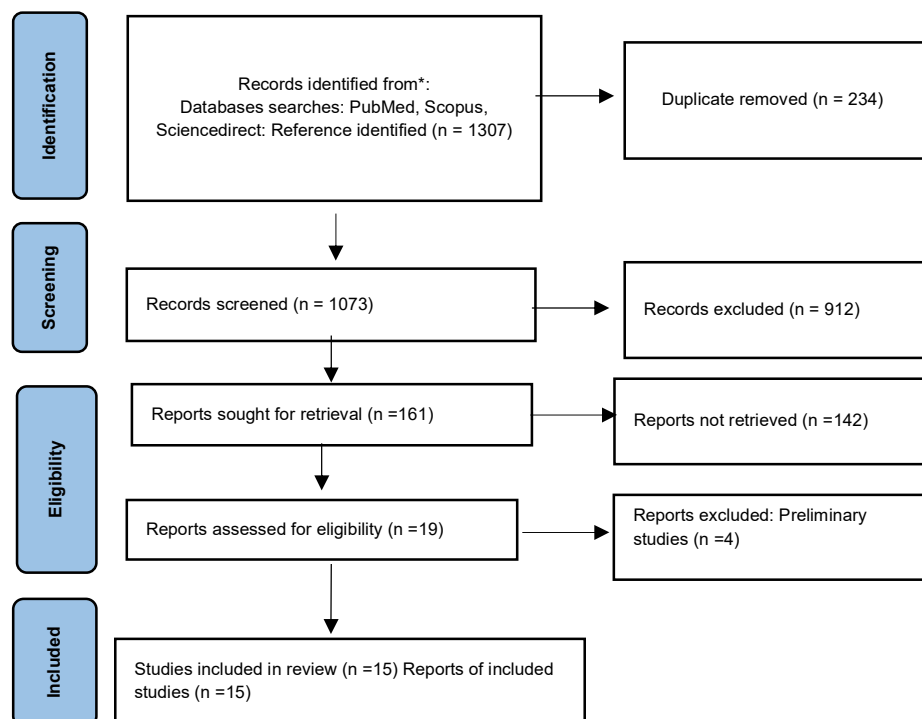


Figure 1. PRISMA Flow Diagram

RESULTS AND DISCUSSION

The selected literature consists of 15 articles, conducted in several countries, the United States, Africa, Iran, Nigeria, Tanzania, Ethiopia, Egypt, China, and one study involving 12 countries are Bangladesh, Nigeria, Colombia, Honduras, India, Liberia, Mozambique, Namibia, Niger, Peru, Sierra Leone, Uganda, Zambia. The sample in the study was female adolescents aged 10-24 years, with participants married,(9)(10)(11) married and unmarried,(12) and not specified. (5)(13)(14)(15)(9)(16)

The number of samples in each study varies, but most use large samples of more than 300 samples because they use datasets from various secondary data sources, while those that use small samples are in qualitative research.(9) Some studies use secondary data originating from datasets from household surveys, (5)(17)(12) DHS,(15)(18)(10)(11) Adolescent baseline survey,(19) NCSS-SRH21 and used primary or unknown data. (13)(9)

The prevalence of contraceptive use in adolescents ranges from 22.3% to 82.5%.(13)(17)(15), modern contraceptive use ranges from 6% to 27% (5)(20)(18)(12)(11), and while it is unknown.(14)(16) One study only includes the use of emergency contraceptive methods at 18.3% and female concomitant at 80.3%, without including the use of other contraceptives.(21) In qualitative research, it was found that 6 out of 14 respondents used MMC, 3 used traditional methods and 5 did not use any.(9)

From the 15 selected articles, 42 predictors of contraceptive use among adolescents were obtained, consisting of 30 internal factors and 12 external factors. Sociodemographic factors include knowledge, (14)(18)(9)(19)(11) education level,(17)(20)(19)(10)(16) age,(14)(12)(11) marital status, (17)(18) wealth quintile,(13)(20)(22)(12) currently in education,(19), religion,(10) social status,(16) region of residence living,(13)(17)(22)(10) social norms in society,(13)(12) ethnicity and customs.(20)(11)

Individual factors include self-efficacy for contraceptive,(14)(19)(11) decision maker, (9)(11), fear of medical complications,(21)(9) partner's age difference,(17) wanting to prove identity as a wife,(9) getting rid of loneliness,(9) having a partner,(12) high motivation,(12) desire to have children,(17) literacy,(22) fertility preferences,(19) fear stigmatized and embarrassed,(18) attitudes towards sexuality,(11) sexual health knowledge and lifestyle,(11) partner and/or friend support,(12)(19) family related factors,(21)(11) pressure to get pregnant,(21) myths.(10)

Reproductive factors include medical problems,(8)(11) number of children,(17)(15) parity,(11) number of family members,(19) age at initiation of sexual relations(14), age at birth of children.(14)(20) Health service factors include exposure to information from interpersonal sources or media in the last 12 months,(12) access,(8)(22)(18)(11) quality of information, education and counseling,(8)(21) public knowledge about modern contraceptives,(15) cost,(8) and confidentiality.(8)

This literature review shows that the prevalence of adolescent use of contraceptive ranges from 22.3 to 82.5%. This proves that teenagers are aware of using contraceptives. However, the prevalence of modern contraceptive use is still low, namely around 6 to 27%. This will affect CPR performance. The higher the CPR achievement will affect the total fertility rate (TFR) which indirectly also affects the dependency ratio (DR).(16)

Study come from the African, American and Asian continents. Modern contraceptive use among adolescents originated from the Americas at 82.5%,(13) the African 6-78%,(14)(18)(9)(19) and the Asian 42%.(21) The most common contraceptive method used pill 83%(13) and condoms 54-80.3%.(8) (18)(9)There are several countries with low rates of modern contraceptive use (<10%) among adolescent, despite having several family planning policies. These efforts include marriage age limits,(10) community-based services with counseling, removing duties and taxes on imported contraceptives (19) increased access to family planning and reproductive health,(22) improving the distribution, access and utilization of contraceptives. (20)

Table 1: Characteristics of studies

Author/ Year	Study period	Country	Method/ Design	Sampling Method	Study Population			Data Set
					n	Age	participants	
Savannah Geske MA(13)	2015	USA	Retrospective survey of BCUS trials	NA	398	18-19 years old	Undergraduate and graduate women	NA
L. Makola/ 2019(17)	2012	South Africa	Cross sectional survey	Multistage stratified design and selected random sampling	1460	15-24 years old	Adolescent girls and young women (AGYW)	The 2012 nationally representative population based household survey
Afrouz Mardi (9)	2016	Iran	Qualitative	NA	14	13-19 years old	Married women	NA
Sohail Agha/202(12)	2018	Nigeria (Lagos, Kaduna, Kano)	survey cross sectional	Multistage stratified design and systematic random sample	1916	14-24 years old	Nigerian women	The Household Survey PMA 2020 Nigeria
Adja Mariam Ouédraogo(15)	2010, 2012-2013, 2012	Burkina Faso, Mali, Nigeri (West Africa)	Survey	Systematic random sampling	10156	15-24 years old	Adolescents and young women	The Demographic and Health Survey (DHS)
Mussa Kelvin Nsanya/ 2019(19)	2017-2018	Mwanza, Northwestern Tanzania	Cross-sectional	Cluster sample	3511	15-19 years old	Sexually active married and unmarried women	The Adolescent 360 (A360) baseline survey
Bright Opoku Ahinkorah/ 2020 (20)	2018	Mali, sub-Saharan Africa	Crosssectinal Survey	Multistage stratified cluster sampling	2639	15-24 years old	Adolescent girls and young women	The 2018 Mali Demographic and Health Surveys (DHS)
Saverio Bellizzi (5)	2010-2016	12 countries: Bangladesh, Nigeria, Colombia, Honduras, India, Liberia, Mozambique, Namibia, Niger, Peru, Sierra Leone, Uganda, Zambia.	Survey	Clustering sampling for primary, and random sampling for unit analysis	7268	15-19 years old	adolescents with unintended pregnancies	The Demographic and Health Survey (DHS) 12 countries
Quraish Sserwanja/ 2021(22)	2016	Uganda, East Africa	Cross sectional	Two-stage systematic sampling	4264	15-19 years old	Female adolescents	The Uganda Demographic and Health Survey (UDHS) 2016

Author/ Year	Study period	Country	Method/ Design	Sampling Method	Study Population			Data Set
					n	Age	participants	
Ahissou NCA (18)	2017	Benin, West Africa	sequential explanatory mixed methods	NA	1736	15–24 years old	Adolescent girls and young women	The Benin Demographic and Health Survey (DHS) 2017–2018
Abebaw Gebeyehu Worku(10)	2000, 2005, 2011	Ethiopia	Cross sectional	NA	2157, 1904, 2146	15-24 years old	Young Married Women	The Demographic and Health Survey (DHS) 2000, 2005, and 2011
Mirette M Aziz/ 2021(11)	2021	Egypt	Household Survey	NA	729	< 20 years old	Married adolescent girls	The Household Survey
Chancy Skenard Chimatiro (21)	2021	Malawi, Africa	Descriptive cross-sectional	Cluster sampling	388	10-19 years old	Adolescent girls	NA
Kathleen P Tebb/ 2019(14)	2019	Los Angeles, USA	Case control	Cluster randomized control trial (CRCT)	1360	<18-24 years old	Sexually active Latina adolescent	NA
Zongchao Liu/ 2021(16)	2019-2020	China	Survey and ensemble machine learning models	Multistage sampling	12.28 0	NA	College student	The National College Student Survey on Sexual and Reproductive Health in 2020 (NCSS-SRH 2020)

Table 2: Summary of contraceptive use in adolescents studies

Reference s	Study aim	Locat ion	Prevalence	Predictor Factor	Result
Savannah Geske MA (13)	to ascertain whether obstacles in rural areas could make it less likely for adolescents to get access to effective contraceptive.	Urban rural	82,5% use contraceptive 83 % use pills, 4% an injectable, 1% atch, ring and diaphrag, 54% condom, 10% multiple methods. No participants endorsed using hormonal implants, contraceptive sponges, cervical caps or intrauterine devices.	Demographics (rural), confidentiality, access, conservative values in society, socioeconomic status, cost, lack of information, medical problems.	In this study, measurements of sexual activity and contraceptive use during high school were carried out retrospectively using the Barriers to Contraceptive Use Scale (BCUS). However, in this study, the definition of rural and urban is not clear, so the respondent's self-identity and the OMB definition are used. The research is retrospective so it has the potential for bias. The survey of only college students did not include teenagers who were not in college. Respondents were mostly from the Midwest, there are characteristics that differ from other urban areas, possibly influenced by rural barriers such as lack of anonymity and conservative community values due to the small population. Participants were not specified when they first received contraceptive, because it would be different between teenagers in rural and urban areas.
L. Makola/ 2019.(17)	To investigate behavioral and sociodemographic predictors of using contraceptives among adolescent girls and young women (AGYW) between the ages of 15 and 24.	Urban and rural	78% use contraceptive	Socio- demographic factors: education level, type of region and marital status Behavioral factors: age at initiation of sexual relations, age difference between partners, and childbearing.	This study used cross sectional therefore it cannot conclude causality. Analyzes are based on self-reported data that could be skewed by social desirability bias and recollection. Its strength is that it uses nationally representative data so that it can participate in the planning and discussion of public health.
Afrouz Mardi (9)	To explore factors influencing teenage women residing in Ardabil, Iran, from their perspective regarding the usage of contraceptives		6 from 14 teenage women (42%) use MMC. Of the 14 respondents, 5 people did not use any contraceptive , 3 calendar methods, 1 pill, 1 condom	quality of education and counseling, education by the family, pressure to get pregnant, wanting to prove identity as a wife, eliminating loneliness, lack of decision- making power, misunderstandin g about contraceptive, fear of being infertile, fear of side effects.	This research uses an interview approach is translation from Turkish to Farsi and English, which is done independently by two professional translators and then verified by a third party. Additionally, as this study was limited to adolescent girls in in one city in Iran, its findings cannot be applied to all adolescent girls in Iran.
Sohail Agha/2021	To explore whether social norms are		27% use MMC and	Age, having a partner, level of	This research uses the Fogg Behavior Model (FBM) which

Reference s	Study aim	Locat ion	Prevalence	Predictor Factor	Result
(12)	associated with modern contraceptive use among Nigerian women, and whether they affect behavior through motivation or through ability.		64% use condom	wealth in poor women, social norms, high motivation	postulates that behavior is the result of simultaneous occurrences of ability, support, and motivation. This research uses cross-sectional survey data so there are no causal conclusions. Several important elements were not measured, including ability in SBM (time, money, physical effort) because data from the survey was not available. Social desirability bias or recall bias occurs.
Adja Mariam Ouédraogo(15)	To estimate the prevalence of contraceptive method discontinuation among adolescents and young women and to identify its associated factors in Burkina Faso, Mali, and Niger.	Urban and rural	22,3% use contraceptive	Education level, occupation, number of children, marital status and desire to have children.	This study shows that, for social reasons, women might not want to disclose their experiences stopping contraceptive. The usage of the most recent method of contraceptive was included by the researchers, and data was collected on a monthly basis to reduce the possibility of respondent recall bias. According to the findings, 50% of teenagers and young women in Burkina Faso, 96.8% in Mali, and 96.8% in Niger stopped using contraceptive methods.
Mussa Kelvin Nsanya/ 2019(19)	To describe differences in modern contraceptive use among adolescent women aged 15–19 years according to their marital status and to determine factors associated with modern contraceptive use among sexually active women in this population	Urban	19,4% married woman and 48,7% unmarried woman use MMC.	Age, education level, currently in education, exposure to information from interpersonal sources or in the media in the last 12 months, support from partner and/or friends, knowledge and self-efficacy for contraceptive	This study used a cross-sectional design, making temporal causal relationships difficult to establish, the sample size was small so it could not identify the determining factors for contraceptive use among married young women. It did not collect data on intent to become pregnant and thus does not have data on this potential explanatory variable. Due to the cross-sectional design of this study and its limited sample size, it was unable to determine the factors that influence the use of contraceptives among married young women. This makes it impossible to establish temporal causal correlations. It lacks information on this potential explanatory variable because it did not gather data on intent to become pregnant.
Bright Opoku Ahinkorah/ 2020(20)	To examine the individual and community-level factors associated with modern contraceptive use among this age cohort using the 2018 Mali	Urban and rural	17,1% use modern methods contraceptive (MMC). implant 8,92%, Injection 5,74%, Pill	Individual factors: marital status, education level, wealth quintile, parity, ethnicity and ideal number of children Environmental	This research is retrospective. Contraceptive is a sensitive issue so respondents may answer to maintain their self-image and social desirability bias occurs. This study also used a cross sectional design therefore it cannot conclude a cause and effect relationship.

Reference s	Study aim	Locat ion	Prevalence	Predictor Factor	Result
	demographic and health survey data.		1,47%, intra uterine device 0,47%, Male condom 0,41, MAL 0,07	factors: Public knowledge about modern contraceptives	
Saverio Bellizzi (5)	To explore the contribution of the underuse of modern methods of contraceptive (MMC) to the annual incidence of unintended pregnancies among adolescent women	Urban and rural	9,8 % adolescence with unwanted pregnancy and 23,3% adolescence not pregnant use MMC.	Social factors and health services: access/availability and partner disapproval	This study used used DHS from twelve nations with low and middle-income countries, and collected a sample of sexually active adolescents aged 15-19 years, who were either not pregnant or had an unintended pregnancy. Adolescence with unwanted pregnancy: 9,8 % use MMC, 5,1% use traditional method, and 85,1% don't use anything. Adolescence not pregnant: 23,3% use MMC, 2,8% traditional methods, 73,9% don't use anything.
Quraish Sserwanja / 2021(22)	To determine the factors associated with utilization of modern contraceptives among female adolescents in Uganda	Urban and rural	9,4% use MMC	age at first birth, region, wealth index, and marital status	This study used a cross sectional design limited by the lack of temporalis so that conclusions of causality cannot be made. There is a chance of information bias because the majority of predictor variables are based on self-reporting and cannot be independently validated through documentation. There are no data on teenagers under the age of fifteen..
Ahissou NCA(18)	To assess the determinants of modern contraceptive method use among young women in Benin.		8,5% women age 15-24 years old and 13% women age more than 25 years use MMC	literate, unmarried, aware of more modern contraceptive methods and experiencing barriers in access to health services.	Women aged 15–24 years have higher unmet need, and less demand satisfied by contemporary methods of contraceptive than do women who are 25 years of age or older 60.8% of unmarried women do not need modern contraceptive.
Abebaw Gebeyehu Worku(10)	To analyze the trends and determinants of changes in modern contraceptive use over time among young married women in Ethiopia	Urban and rural	6% in 2000, 16% in 2005, and 36% in 2011 use MMC	Women's education, age, number of family members, fertility preferences, place of residence, religion.	Several important variables, such as women's decision making, were not included due to lack of data, so they were represented by another variable, namely "partner suitability for the number of family members". The EDHS measurement tool for the wealth index differs between surveys, so the wealth variable is excluded from the trend analysis. Research on young women aged 15-25 is very limited, so we turned to women 15-49 years old
Mirette M Aziz/ 2021(11)	To explore the contraceptive practices of married adolescent girls in rural Upper Egypt	Rural	6% use MMC and 10,6% have ever used contraceptive	beliefs in contraceptives, older age, knowledge, partner decision	The study was conducted in two sizable governorates in Upper Egypt, reaching out to isolated rural communities and delving into the delicate topic of child

Reference s	Study aim	Locat ion	Prevalence	Predictor Factor	Result
	and identify the determinants of their ever use of modern contraceptive			making, myths, customs	marriage. However, there is less exploration of the perception and use of contraceptive among unmarried adolescent girls due to the conservative nature of Egyptian society.
Chancy Skenard Chimatiro (21)	To explore the views of school-going adolescent girls regarding their preferences for modern family planning methods including emergency contraceptives in Phalo mbe, Malawi.	Rural	18,3% adolescence have use and 2% have use EC. 80,3% use male and female condom	Fear of being stigmatized and embarrassed, having to travel long distances to reach a place of service, knowledge and fear of medical complications.	This study was conducted in eight schools where high rates of adolescent pregnancies were reported by three traditional authorities: Nkhulambe, Jenala, and Nkhumba. Based on quantitative data, the research findings highlight the substantial information gap regarding the challenges faced by teenagers, particularly with regard to their sexual health. Analogous research using qualitative methods helps bridge this gap.
Kathleen Tebb/ 2019 (14)	PTo described efforts used to support the successful adoption and implementation of the Health-E You app in clinical settings and described facilitators and barriers encountered to inform future efforts aimed at integrating mHealth interventions into clinical settings.	NA		The attitude of accepting that contraceptive can be used for birth spacing, older age, good knowledge, mutual decision of the couple.	This research is a controlled trial with an intervention group using the <i>E Health You</i> application with an iPad, the control group was given standard sexual health services questions. The result is that <i>E Health You</i> is effective in increasing knowledge, self-efficacy, and use of condom contraceptive among Latina adolescents. This study cannot assess the specific level or extent of technology adoption, as it is a large study. Findings cannot be generalized to other <i>mHealth</i> due to different topics and environments.
Zongchao Liu/ 2021 (16)	To identify and compare the importance of a complete spectrum of internal and external factors affected young people's contraceptive behaviors	Urban and rural	NA	Factors related to frequency of contraceptive use (FCU): education, socio-economics, attitudes towards sexuality, sexual health knowledge, sexual and mental health history, contraceptive accessibility, family-related factors, and lifestyle.	This survey research used a large sample size of students regarding sexual and reproductive health, making it possible to train a more stable ML model, however the proportion of participants with low FCU was relatively small, resulting in inadequate machine learning (ML) model training. The model uses regression because the FCU has an ordinal and discrete scale, whereas when training the model it is treated as a continuous variable, causing a high possibility of prediction error. Excluding sexual minority groups for analysis because they include adverse events.

This research proves that there are many reasons why teenagers do not use contraceptives. The aim of using contraceptive is so that couples and individuals understand their rights to be free and responsible in deciding when and how many children they wanted.(23)

Based on the similarities in the results of the included research, we grouped them into four thematic summaries. These determinants are related to sociodemographic factors, reproductive factors, individual factors and health services.(24)

Factors of Sociodemographic

Factors of Socio-demographic influence the use of contraceptive.(14) Adolescents' awareness of using contraceptive cannot be separated from their level of education.(15)(10)(11) Young men or women who are in the process of obtaining a master's degree holders typically have higher frequency of contraceptive use, because higher education is likely to provide greater possibilities to educate people about sexuality and raise awareness of contraceptive.(11) People who live in cities and have greater levels of education are more likely to want to put off having children in order to fulfill their aspirations.(15) Low levels of education have the consequence of opportunities to learn about contraceptive as well as low levels of women's empowerment.(10)

Age is an index of a person's development, the older a person is, the more maturity they have in thinking and working. 25 Women aged 20-24 are significantly more likely to use contraceptive compared to women aged 14-19 years.(9) (19) Teenagers give birth at the age of < 15 years, 2 times more likely to use modern contraceptive than those born at >15 years(20) is inversely proportional to the statement that there is no relationship between age and the use of modern contraceptive in adolescents.(25)

Occupation, wealth and welfare as factors influencing contraceptive use.(20)(22)(12)(25)(26) Financial constraints are an important factor in contraceptive use among adolescents.(22) Adolescents who are in the poorest wealth quintile are less likely to use modern contraceptive.

Therefore, poor people tend to have limited access to modern contraceptives due to out-of-pocket expenses for purchasing contraceptives or transportation expenses to free public facilities, so they tend to have less information about family planning.(22)(12) Meanwhile, women from very wealthy or wealthy families can overcome cost barriers in obtaining contraceptive.(20) Working women who have high welfare have a lower tendency more likely than women who do not work to take modern contraceptive.(26) The middle wealth quintile is more likely than the lowest percentile of wealth to use modern contraceptive. The use of modern contraceptive is higher among married teenagers than unmarried teenagers.(22)

Place of residence is one of the predictors of contraceptive use. In developing nations, urban areas are typically linked to higher levels of education, improved access to healthcare (including contraceptive), and other social services.(27) There is no difference in sexual activity and pregnancy rates between rural and urban areas.(13)

Factors of Reproductive

Based on selected articles, parity influences the use of modern contraceptive in adolescents.(25) Only children have a higher frequency of contraceptive use, and this is estimated based on current economic development patterns and policies in China.(16) No respondents used contraceptive before giving birth to their first child, due to the norm gender greatly influences fertility desires and hinders adolescent contraceptive uptake as well as social pressure to have children immediately after marriage.(11) When compared to single women, unmarried women who had one or more children had much reduced likelihood of utilizing modern contraceptive.(19)

Factors of Individual/Client

Factors of individual/client consist of level of knowledge about contraceptive, partner support and others. Knowledge is a factor that influences contraceptive use. (21)(11)(16) (26) Women who have a lot of knowledge about contraceptive are more receptive to messages regarding the effectiveness of contraceptive and the benefits of contraceptive for maternal and child health so they have more potential to practice using modern contraceptive.(26) Knowledge of reproductive health can predict contraceptive practices of married teenagers, and this has a big influence in the decision making of family planning.(11)

Contraceptive use is influenced by the couple's decision. There are cultural norms that prohibit married teenagers from making independent decisions about family planning, which results in low contraceptive use even though they plan to delay their first birth or delay pregnancy. Married young women say that their husbands are the only decision makers regarding contraceptive use because the husband is the breadwinner, some teenagers even say that their mother-in-law is the decision maker regarding family planning.(11) A couple decision to use modern contraceptive is influenced by television media.(26)(28) so communication, information and education regarding contraceptive are needed through talk shows, promotions to the wider community via television or other media (26)

Factors of Health Services

Easy access to contraceptive will increase contraceptive use, for example what is being done at several universities in China by launching a project to provide free condoms for students can prevent unwanted pregnancies because it can overcome the shame of students who buy them.(16) The government provides a free insurance program for contraceptive use.(22) Home visits by health workers and increasing mass media coverage.(28)

Access is also related to the location of residence. Adolescents who live in central business areas and urban areas will have increased access to family planning information.(22) In contrast, women who live in rural areas are more likely to use modern contraceptive methods compared to those who live in urban areas.(26) Factors that influence the use of modern contraceptive others, namely because health services do not provide enough information, difficult access and lack of privacy and uncomfortable service hours in health facilities, the attitude of staff when providing services.(29)

CONCLUSION

The final fifteen research obtained varied in terms of study design and focus, methodology and outcome measures. Our search was limited to factors of predictor, therefore we could not find local government efforts in implementing family planning programs. Additionally, we only included studies published in English which had limited impact on the findings.

This literature review provides evidence that most of the predictors of contraceptive use among adolescents and young women in several countries are influenced by factors of sociodemographic, factors of individual, factors of reproductive and factors of health service. By knowing the factors of predictor, we can increase the prevalence of contraceptive use among adolescence and young women, which can ultimately balance the birth rate.

REFERENCES

1. BKKBN. Laporan kinerja BKKBN 2022 (Revisi). 2022.
2. BPS. Indikator Kesehataraan Rakyat 2022 Welfare Indicators. 2022.
3. WHO. <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy>. 2023. Adolescent pregnancy. Available from: <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy>
4. BKKBN. Laporan Akuntabilitas dan Kinerja Instansi Pemerintah 2021. 2021;2(1):169.
5. Bellizzi S, Pichierri G, Menchini L, Barry J, Sotgiu G, Bassat Q. The impact of underuse of modern methods of contraception among adolescents with unintended pregnancies in 12 low-and middle-income countries. *J Glob Health*. 2019;9(2):1–9.
6. United Nations. World Fertility and Family Planning 2020. Department of Economic and Social Affairs Population Division. 2020. 1–42 p.
7. BKKBN. Rencana Strategis BKKBN 2020-2024. 2020.
8. SDKI. Survei Demografi dan Kesehatan Indonesia 2017. SDKI. 2017.
9. Mardi A, Ebadi A, Shahbazi S, Esmaelzade Saeieh S, Behboodi Moghadam Z. Factors influencing the use of contraceptives through the lens of teenage women: A qualitative study in Iran. *BMC Public Health*. 2018;18(1):1–8.
10. Worku AG, Tessema GA, Zeleke AA. Trends of modern contraceptive use among young married women based on the 2000, 2005, and 2011 Ethiopian demographic and health surveys: A multivariate decomposition analysis. *PLoS One*. 2015;10(1):1–14.
11. Aziz MM, Elgibaly O, Mohammed HM. Family planning perspectives and practices of married adolescent girls in rural Upper Egypt. *European Journal of Contraception and Reproductive Health Care*. 2021;26(3):214–20.
12. Agha S, Morgan B, Archer H, Paul S, Babigumira JB, Guthrie BL. Understanding how social norms affect modern contraceptive use. *BMC Public Health*. 2021;21(1):1–11.
13. Geske S, Quevillon R, Struckman-Johnson C, Hansen K. Comparisons of Contraceptive Use between Rural and Urban Teens. *J Pediatr Adolesc Gynecol*. 2016;29(1):33–41.
14. Kathleen P Tebb, Sang Leng Trieu, Rosario Rico, Robert Renteria, Felicia Rodriguez MP. A Mobile Health Contraception Decision Support Intervention for Latina Adolescents: Implementation Evaluation for Use in School-Based Health Centers. *JMIR Mhealth Uhealth* 2019 Mar; 7(3): e11163. 2019;
15. Ouédraogo AM, Baguiya A, ... Predictors of contraceptive method discontinuation among adolescent and young women in three West African countries (Burkina Faso, Mali, and Niger). *BMC* 2021;
16. Liu Z, Lin Z, Cao W, Li R, Liu L, Wu H, et al. Identify key determinants of contraceptive use for sexually active young people: A hybrid ensemble of machine learning methods. *Children*. 2021;8(11).
17. Makola L, Mlangeni L, Mabaso M, Chibi B, Sokhela Z, Silimfe Z, et al. Predictors of contraceptive use among adolescent girls and young women (AGYW) aged

- 15 to 24 years in South Africa: results from the 2012 national population-based household survey. *BMC Womens Health*. 2019;19(1):1–7.
18. Ahissou NCA, Benova L, Delvaux T, Gryseels C, Dossou JP, Goufodji S, et al. Modern contraceptive use among adolescent girls and young women in Benin: A mixed-methods study. *BMJ Open*. 2022;12(1):1–12.
19. Nsanya MK, Atchison CJ, Bottomley C, Doyle AM, Kapiga SH. 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).
20. Ahinkorah BO, Seidu A aziz, Appiah F, Budu E, Adu C, Boahemaa Y, et al. Individual and community-level factors associated with modern contraceptive use among adolescent girls and young women in Mali : a mixed effects multilevel analysis of the 2018 Mali demographic and health survey. *Contracept Reprod Med*. 2020;5(Article number: 27 (2020)):1–12.
21. Chancy Skenard Chimatiro. School-going adolescent girls' preferences and views of family planning services in Phalombe district, Malawi: A descriptive, cross-sectional study. *PLoS One* 2022 May 3;17(5). 2022;
22. Sserwanja Q, Musaba MW, Mukunya D. Prevalence and factors associated with modern contraceptives utilization among female adolescents in Uganda. *BMC Womens Health*. 2021;
23. United Nations. *World Population Policies 2021*. United Nations Publication. 2021.
24. Kebede, Abaya SG, Merdassa E, Bekuma TT. Factors affecting demand for modern contraceptives among currently married reproductive age women in rural Kebeles of Nunu Kumba district, Oromia, Ethiopia. *Contracept Reprod Med*. 2019;4(1):1–16.
25. Priskatindea, Ronoatmodjo S. Hubungan Tingkat Pengetahuan Tentang Alat/Cara KB dengan Pemakaian Kontrasepsi Modern pada Wanita Kawin Usia Remaja di Pulau Jawa, Indonesia (Analisis Data SDKI 2017). *Jurnal Epidemiologi Kesehatan Indonesia*. 2021;5(1):9–18.
26. Gayatri M. Pemakaian Kontrasepsi Modern pada Wanita Nulipara dan Primipara Usia 15- 24 tahun di Indonesia PRIMIPARA USIA 15-24 TAHUN DI INDONESIA. 2021;(January 2020).
27. Seran AA, Laksono AD, Dewi A, Sujoso P, Ibrahim I, Baharia N. Does Contraception Used Better in Urban Areas?: An Analysis of The 2017 IDHS (Indonesia Demographic and Health Survey). *Sys Rev Pharm*. 2020;11(11):1892–7.
28. Gichangi P. Demand satisfied by modern contraceptive among married women of reproductive age in Kenya. *PLoS One* 2021 Apr 9;16(4). 2021;
29. Mekonnen AG, Odo DB, Nigatu D, Amare NS, ... Determinants of adolescents' contraceptive uptake in Ethiopia: a systematic review of literature. *Contraception and* 2022;