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## **Knowledge and Practice of Hormonal Contraception among High School Teens**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author FH designed the study, wrote the protocol, conducted survey and wrote the first draft of the manuscript. Author JBN consolidated the protocol and managed the literature searches. Author JNK managed the analyses of the study, performed statistics and wrote the final version. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Background:** Unwanted pregnancies in sexually active teenagers give headaches to many parents and are devastating for the girls themselves. The use of hormonal contraception (HC) is an issue, but the promotion of HC at this age is perhaps a complex issue.

**Objective:** Evaluate knowledge and practice of HC among high school girls in Rwanda.

**Methods:** 134 girls aged 15 to 19 from two high schools responded confidentially to a standard open questionnaire on their knowledge and practice of HC.

**Results:** More than 87% of those surveyed had heard of HC, but not everyone could tell the exact role of taking birth control pills. The main source of information on contraception was the media and health care providers, while parents and the role of school education were negligible. About 10.4% of respondents confirmed having used HC on their own initiative or under pressure from their partners. The reason girls practice sex at this age is mainly poverty, the need to live luxuriously and culture. More than half expect to use contraception if the cost is affordable and they have complete information on side effects and how to use it.

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**Conclusion:** A marginal group of schoolchildren practice HC. They need good information about it. However, there is still controversy in Africa over whether to promote the use of contraception at the secondary level. After all, adequate educational intervention through other means of reducing unwanted pregnancy rates among sexually active adolescents is of great importance.

*Keywords:* Teenagers; high school; hormonal contraception; knowledge; practice; Rwanda.

## 1. INTRODUCTION

World statistics on pregnancy and childbirth indicate that about 16 million girls aged 15 to 19 give birth each year and the consequences are multiple [1]. Girls who have a baby are very likely to withdraw their school, and their children are likely to have poor education, bad behaviour and health problems [1-4]. The practice of contraception (PC) is a way to prevent unwanted pregnancies and their consequences. The PC provides other important health benefits by reducing maternal morbidity and mortality related to pregnancy, promoting women's empowerment and ensuring long-term environmental sustainability [2-4]. Many methods of contraception are available and some are well designed for emergency use. Emergency contraception (EC) is the last chance for women to avoid pregnancy after unprotected intercourse [5-7]. The combination of oral contraceptive pills and condoms also provides dual protection against pregnancy and sexually transmitted infections.

However, despite a strong awareness among young people about hormonal methods, teenage pregnancy remains a major socio-economic and health problem worldwide. Unwanted pregnancy is associated with many factors such as the frequency of sexual intercourse without reliable contraception, poor sexual communication between partners, over-consumption of alcohol, fear of hormonal contraceptives, and poor school sex education. Data from many surveys show that contraceptive use rates are much lower among adolescents aged 14 to 19 than among young adults aged 20 to 24 years.

In Rwanda, every year, about 47% of all pregnancies in the country are involuntary, a proportion that varies slightly from one province to another [8]. The Government of Rwanda has made great efforts to reduce unwanted pregnancies among girls by integrating a sex education program into secondary education and education throughout the health care cycle. According to the UNICEF report, this resulted in

a reduction from 74 births in 1960 to 26 births per 1,000 girls aged 15 to 19 in 2015 [9]. Since the contribution of hormonal contraception (HC) is not known, this study aimed to explore the level of knowledge and practice of HC among adolescent girls in high school and to describe the main factors associated with sexual practices and use of HC.

## 2. METHODS

A cross-sectional survey was conducted in 2016 in two secondary schools in Rwamagana District, ASPESKA School (Parent Association of Karenghe High School) and LIR (Rwamagana Islamic High School). The study was designed to directly explore the degree of knowledge and practice of HC and indirectly the sexual behaviour of adolescent girls. The protocol was cleared by the ethical commission of the School of medicine and pharmacy under dissertation research programme. A questionnaire with structured closed or open questions was administered. Consent to participate was obtained directly from the participants on a voluntary basis and permission to conduct the study was obtained from school authorities. Participants were invited to answer the questionnaire themselves while being as objective and fair as possible. All necessary measures have been taken to ensure confidentiality. Participants had the right to skip any questions they could be mistaken while being as accurate as possible. A convenient sampling was fixed. The sample size was calculated in proportion to the number of students aged 14 to 19 in each school and given a 95% confidence limit with a significance level of 5%. A total of 134 girls aged 14 to 19 were recruited: 51 girls at ASPESKA school and 83 girls at LIR school. The students were in both lower (first 3 years of study) and upper level (last 2 years) of the secondary programme. The data were analyzed using the SPSS v20 software to describe the weighted frequencies of the various measurement variables selected. The results are presented in the graphs since the non-inference statistics were used.

### 3. RESULTS AND DISCUSSION

#### 3.1 Demographic Characteristics of Participants

Fig. 1 shows the distribution of 134 girls recruited by age and class. The age of participants fell into the normal window of high school students, which is 14-19 years old in many countries. Of these, 50 (37.3%) were aged 14 to 16 years and 84 (62.7%) were between 17 and 19 years old; 14(10.5%) were at a lower level and the majority 120(69.5%) at the upper level of study.

#### 3.2 Knowledge of Hormonal Contraception

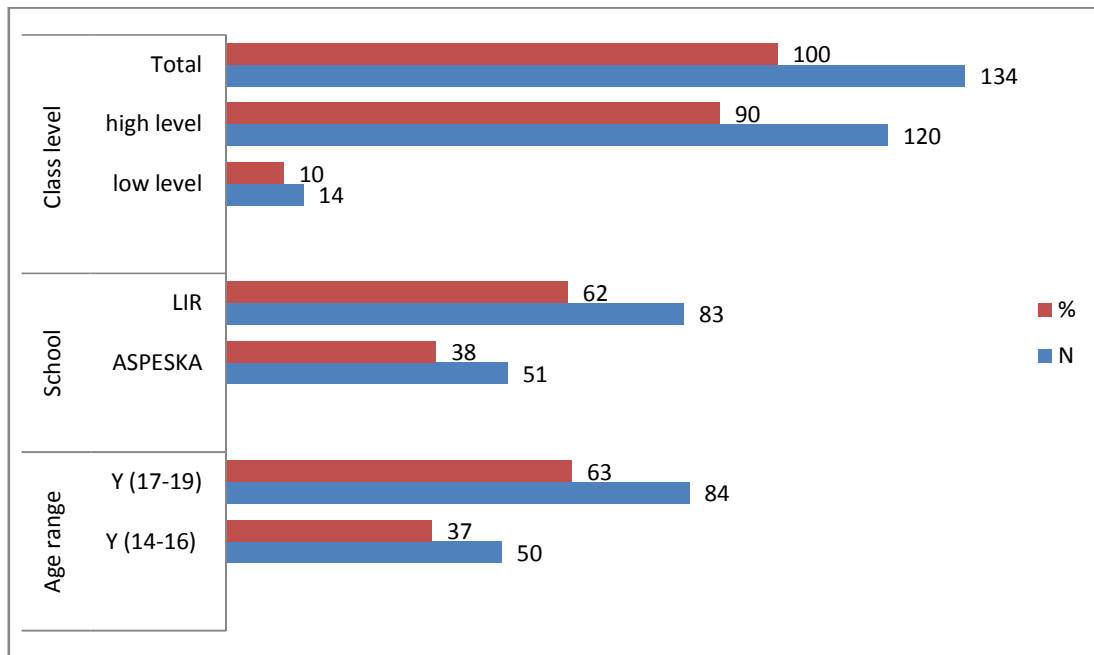
Fig. 2 shows the frequencies observed on the types, the source of information and the role of HC. Of the 134 girls who voluntarily agreed to answer the questionnaire themselves, only 9.7% of those surveyed had no idea of HC-type methods and were the youngest in the group. The methods mentioned were injectables (54.5%), implants (44%), ECPs (38.8%), ordinary contraceptive pills (36.6%), IUDs with implants (9.7%), transdermal contraceptive patches (3.7%), progestin-only pills (2.2%).

Information was much more obtained from the media (67.1%) and health professionals (43.3%) and less from school education (27.6%) and parents (9.7%). The majority (84.3%) knew that HC was used to prevent unplanned pregnancy, but 25.7% gave poor responses, such as treating HIV, treating urinary tract infections, treating malaria or abortion.

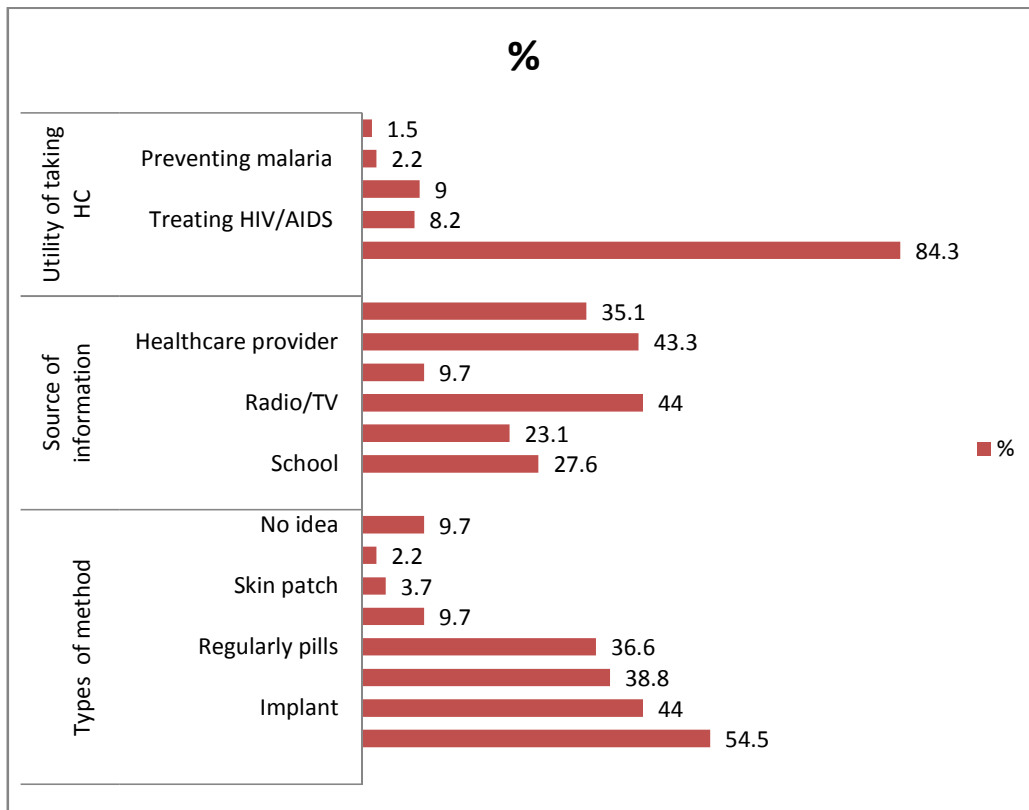
The score of 84.3% of those who knew at least one method is higher or close to what has been found in other African countries [10-16]. The discovery also highlighted the important role of the media and the low involvement of parents and school education as sources of knowledge. Our previous survey, which engaged university students, had resulted in the same fact [7].

#### 3.3 The Actual Practice of Contraception and Methods Used

Fig. 3 indicates that only 14 girls (10.4%) confirmed using HC; 8 (6%) were still in use, and 83 (61.4%) are willing to use it in the future if they receive well-documented information. Of the 14 users, 8 (57.14%) used ECP, 3 (21.4%) injection, 2 (14.3%) progestin-only pills and 1 (7.1%) contraceptive implants. The decision to



**Fig. 1. Frequencies by age and school of participant girls**  
 Questions about the type and source of the information were closed multiple choice. Questions about the usefulness of taking HC were open



**Fig. 2. Level of Knowledge about hormonal contraception**

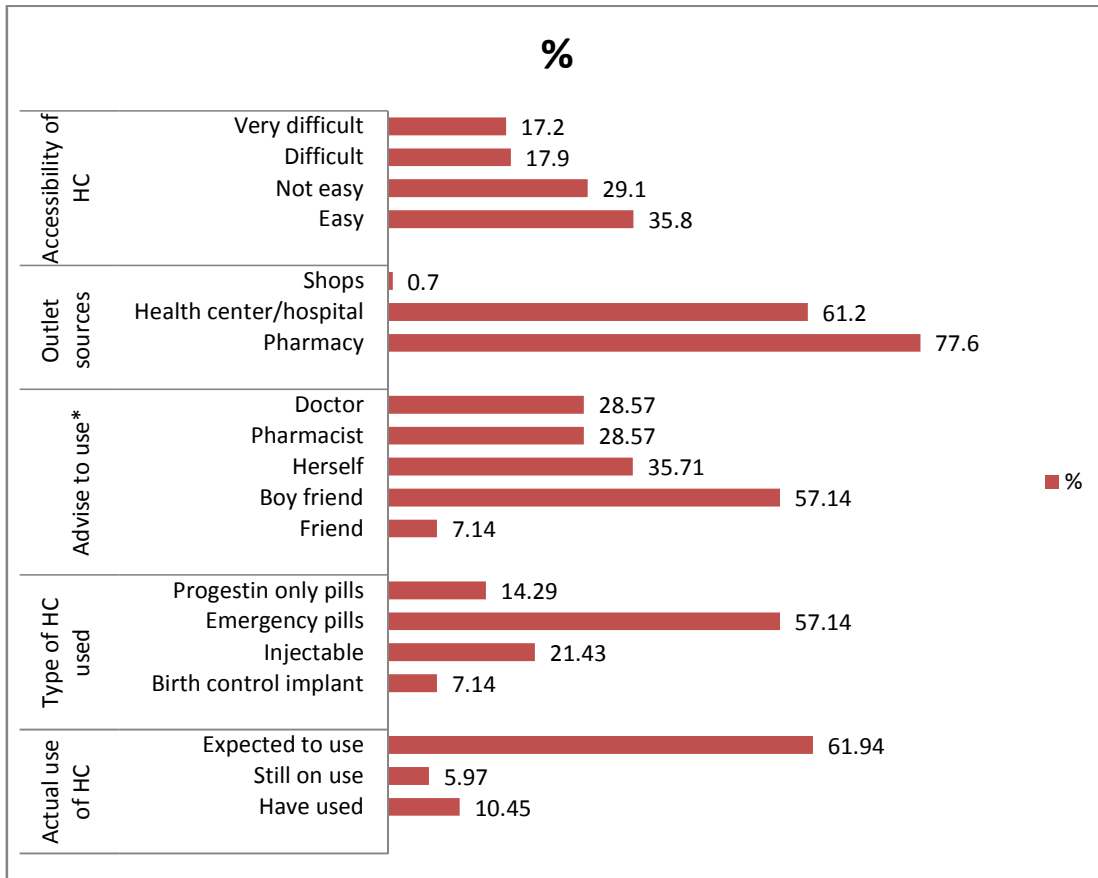
take HC was inspired by their boyfriends (57.14%), by themselves (35.71%) or by a third person. The majority were aware that community pharmacies (77.6%) and health care providers (61.2%) were appropriate places to buy HC products, but 0.7% thought they could get them in the stores.

This shows that ECPs are well known and implemented in Rwanda among young men and women. Indeed, among the 14 girls who used HC, 8 of them were advised by their partner. In other African countries, contraception by injection was the most widely used at average rates close to 40% [10-16]. In 2012, the Canadian Sexual Information and Education Council (CCISC) reported that 47% of teens aged 15 to 19 had used condoms and oral contraceptives in the previous six months [17]. In the United States, studies have shown that in the 2013 surveys, 19% of high school students had used the birth control pill during their most recent sexual intercourse [18]. The difference may be related to the number of sexually active girls in each population. Regarding sexual activity in Rwanda, the overall proportion of young people aged 15 to 24 who reported having already had sex was

31% for young men and women in 2009, or about 16% for women only [19,20]. The experience of sexual activity reported by young Rwandan women in 2014 was only 14%, indicating the lowest levels of sub-Saharan Africa compared to Tanzania and Uganda with rates of 35-40% [1,16]. Another report analyzing demographic and health survey data from 38 developing countries found that the proportion of adolescent girls aged 15 to 19 ranged from 4% in Rwanda to 43% in Mozambique [21].

### 3.4 Factors Promoting Sex or Abstaining from Contraception

As shown in Fig. 4, when asked about the causes that push some girls to have an unwanted pregnancy, respondents mentioned ignorance (34.3%), the need to live luxuriously (61.2%), poverty (44%), lack of information on contraception (16.4%), unavailability of ECPs (20.9%), fear of using hormonal contraceptives (29.9%) and influence of the partner (17.2%). The need to live luxuriously means to live beyond her means, bedecked in jewels and clothing high class.



**Fig. 3. Practice of hormonal contraception**

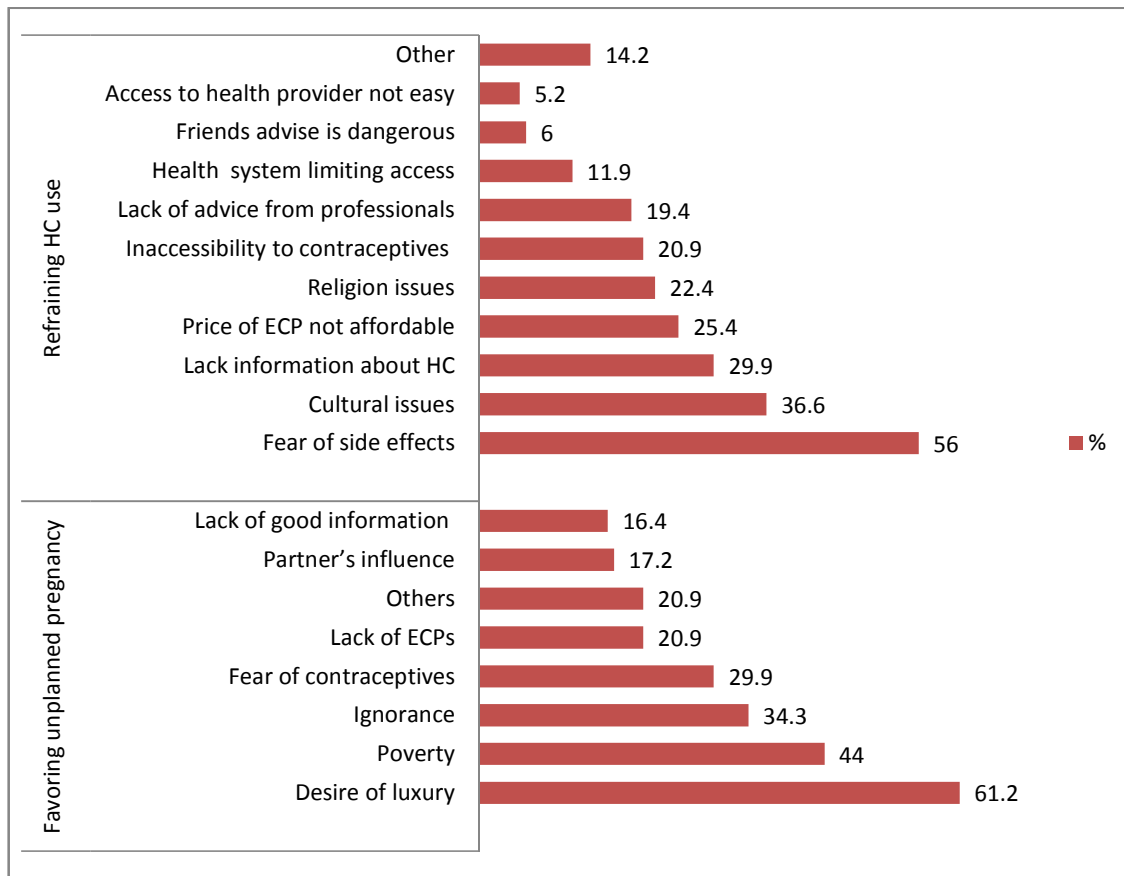
Also, many factors have been given to prevent adolescents from using HC. The main concerns were fear of side effects, cultural and religious issues, lack of information and affordability. When asked about accessibility or installation for HC preparations, 35.8% said it was easy, while others thought it was difficult to get it.

Similar problems have been identified in other studies [22,23]. The pricing system of contraceptive pills makes them inaccessible to adolescents. Making them affordable would require government intervention and NGOs, but the feasibility should be verified.

In Rwanda, a number of projects have been designed to combat poverty through agriculture and livestock development for the poorest rural populations living with less than 1\$ per day. However, it is still far from the millennium goal of reducing 75% of poverty. Forced child marriage is a big concern in the developing world and especially among Muslims; it is a cultural or religious problem [24,25]. Fighting against this

practice is a declared war by many activists all over the world. In Rwanda, the official legal age of marriage is 21 for girls.

There are still discussions about whether contraceptives can cause cancer and irreversible sterility. [Scientifically, a study published by Mørch et al. [26] in N Engl J Med. 2017 vol 377 concluded that "the risk of breast cancer was higher among women who were currently or recently using modern hormonal contraceptives than those who had never used hormonal contraceptives, and this risk increased with longer durations of use; however, absolute increases in risk were minimal". Many people use contraceptive "Pills" without problems at all. However, some common side effects have been described such as mood swings and depression, breast pain or tenderness, enlarged breasts, fungal infections and cystitis, migraine or a headache, nausea and vomiting, stomach problems and diarrhoea, irregular bleeding, rashes, and acne.



**Fig. 4. Associated risk factors**

*The questions were open; HC (hormonal contraceptives); ECPs (Emergency contraceptive pills)*

#### 4. CONCLUSIONS

It is obvious that a good number of high school girls here are sexually active, but only a small number use hormonal contraception. The driving force behind teen sex practice would be the desire to live beyond their means and also the culture. This issue is very complex and difficult to solve. The best way would be the commitment of the government to improve family welfare. Whenever it is difficult to contain sexual desire, education on methods of protection, including condoms and hormonal pills can be absolutely recommended. Parents, schools and churches can make a tremendous contribution to educating our all girls to live happy with what the family is able to offer. Promoting the use of hormonal contraception at this age is certainly a complex issue, but adequate educational intervention on all alternative means to reduce unwanted pregnancy rates in sexually active adolescents is needed.

#### CONSENT

As per international standard or university standard, participant's written consent has been collected and preserved by the authors.

#### ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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