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Assessing Comprehensive Sexuality Education Programs in the Democratic Republic of the Congo: Adolescents' and Teachers' Knowledge, Attitudes and Practices towards Contraception

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Abstract

Introduction: Improving teenagers' knowledge on sexual and reproductive health (SRH) is important to prevent unintended pregnancies. We aimed to assess comprehensive sexuality education (CSE) programs and knowledge, attitudes and practices of adolescents and teachers towards contraception. **Methods:** Based on the reasoned action theory and CSE guidelines, a qualitative study was conducted with seven teachers and 62 adolescents aged 15 - 19. The data were collected through six focus groups (FG) of adolescents and seven semi-structured interviews of teachers. The program of the family life education course (FLEC) was assessed. The Atlas Ti software helped to analyze the data, using a deductive approach. **Results:** The periodic abstinence, male condoms and pills were the most known contraceptive methods. Adolescents and teachers were reluctant to use artificial contraceptive methods, apart from the male condom which they used irregularly. Girls especially preferred natural contraceptive methods, fearing side effects, such as the risk of infertility. Almost all adolescents wanted to be informed on SRH and family planning in school. However, they estimated that the content of the FLEC was insufficient and criticized the teachers' lack of openness. Their main sources of information were peers, siblings and the internet. Mothers were an important source of information for girls, unlike fathers considered to be indifferent or even frightening. **Conclusion:** Adolescents' and teachers' knowledge are weak; and their attitudes unfavorable towards contraception. Misconceptions about contraception lead to the use of ineffective practices to

prevent unwanted pregnancies. To improve knowledge, a teacher training program should be developed and the content of the FLEC improved, formalized and regulated.

Keywords

Adolescents, Knowledge, Attitudes, Practices, Contraception

1. Introduction

Sub-Saharan Africa bears the heaviest burden of unsafe abortions among young people worldwide, with a quarter occurring between the ages of 15 and 19 [1]. In countries with effective sexuality education and family planning (FP) programs, the incidence of abortion is low, unlike countries with restrictive laws, where the culture of prevention and use of contraceptive services are less developed [2]. A significant proportion of adolescents becomes sexually active too early, in a context of low contraceptive use and high unmet needs [3]. In Central Africa, the lack of information on contraception; and the lack of access to a source of FP methods combined with the high cost of contraceptives are the causes of high unmet need [4]. Adolescents have little awareness of the health risks they run by displaying risky behavior [5].

The uptake of contraceptive methods is increasing in the African region [6]. However, interruption rates remain high, especially among adolescent girls who, in addition, face experience of limited access to FP services and methods [7]. Poor access to SRH services can result in the use of unsafe methods and abortion [1]. The low level of education, the disturbed family structure, the low level of income [8] [9] [10] and the limited knowledge in SRH are the causes of the occurrence of unintended teenage pregnancies [1]. Adolescents are facing the challenge of limited access to FP information and services. Out-of-school adolescents are particularly vulnerable; they frequently make less informed choices [11], accentuated when mothers' education level is low [12]. In some countries, adolescent education programs focus mainly on sexually transmitted infections (STIs) and HIV. Significant gaps are identified with regards to pregnancy prevention, condom use, puberty and sexuality [13]. Parents, health workers and teachers are recognized as reliable sources of information on SRH [1]. However, in practice, adolescents learn from peers [1] [13] and family members; girls confide in their aunt, cousins, classmates and even in pornography [1]. Parental controls have been shown to discriminate more against adolescent sexual behavior compared to communication on sexuality with family members [14]. Schools are an important but underutilized source of information on SRH [13]. The international guidelines on sexuality education developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) are intended to improve education in SRH for adolescents in school. A comprehensive sexuality education (CSE) is a curriculum-based teaching and learning process that

addresses the cognitive, emotional, physical and social aspects of sexuality. It aims to equip adolescents with knowledge, skills, attitudes and values that will give them the means to flourish while respecting their health, their well-being and their dignity, to develop respectful social and sexual relationships, to reflect on the impact of their choices, on their personal well-being and that of others and, finally, to understand their rights and to defend them throughout their lives. However, most schools and family life education teachers do not yet apply these guidelines [15]. There is controversy over the role of the media in adolescent sexuality education [13] [16].

The power to negotiate SRH services and contraceptives is limited for adolescent girls, even those living in a couple [11]. Interventions focused on the participation of parents, teachers [1] [17] and children, delivered in schools in early adolescence, can have lasting effects in reducing violent behavior and sexual relations before the age 18 [17]. Knowledge-based interventions can delay the onset of sexual relations. They can also result in demand creation and increased uptake of contraceptive methods by sexually active adolescents [3] [9], acting on the ambivalent and contradictory practices of some adolescents regarding the use of FP [18].

In the Democratic Republic of the Congo (DRC), early onset of sexual activity is reported among adolescents [19] [20]. During sex education sessions for those in school and out-of-school, teenagers value confidentiality and privacy [21]. Although adolescent girls fear unwanted pregnancy, they have limited knowledge about contraception [22]. Obstacles to the use of contraceptive methods are poor communication between partners, unfavorable socio-cultural norms, fear of side effects, and lack of knowledge about FP [23]. The majority of adolescents attend school. Teenagers between 15 and 19 who have had a normal school career find themselves between high school and university. School education in SRH is provided through the family life education course (FLEC), whose curriculum is prepared by the family life education directorate of the ministry of primary, secondary and technical education (MPSTE). The current program of the FLEC is designed to be implemented in high schools in the DRC. However, its content is not clearly defined nor evaluated. Also, the knowledge, attitudes and practices of adolescents and teachers targeted by the CSE program have not yet been analyzed. The objective of this study was to assess the content of the FLEC in the DRC and the knowledge, attitudes and practices of adolescents and teachers towards contraception.

2. Methods

2.1. Theoretical Framework of the Study

This study was carried out on the basis of the reasoned action theory, developed by Fishbein and Ajzen in 2011 [24]. This theory contains 4 main components, of which the attitude towards behavior, subjective norms, intention and behavior. However, in addition to acting as a determinant of intention, perceived and actual behavioral controls are presumed to have direct influence on behavior by reducing

voluntary control over behavior. These components are influenced upstream by certain individual, socio-demographic and informational characteristics, Figure 1.

We hypothesized that adolescents' and teachers' knowledge, attitude and behavior regarding the uptake of the FP might be planned in a context governed by principles controlling these practices.

2.2. Study Design

A qualitative study was organized from March to August 2018 in the commune of Lemba from Kinshasa and the sector of Gombe Matadi located in the province of Kongo Central. The data were collected by interviews and documents review. We organized six focus groups (FGs) of adolescents aged 15 - 19 and seven semi-structured interviews with teachers of the FLEC. The teaching program of the FLEC available in schools and the official training program drawn up by the MPSTE of the DRC were assessed in the light of international guidelines on sexuality education from UNESCO [15].

Teenagers were recruited from both the group of those in school and out-of-school. They were recruited from both male and female groups. Adolescents attending schools were identified from four high schools selected by convenience sampling, at the rate of two schools in Kinshasa and two schools in Gombe Matadi. In each high school, we collected the data from students in the 3rd, 4th and 5th grades selected by snowball. Out-of-school adolescents were identified by the snowball technique from an out-of-school adolescent of each gender, selected from the church, local associations or an informant. Six homogeneous FGs were organized at all, of which two FGs in Kongo Central (at the rate of one FG per gender) and four FGs in Kinshasa. Two out of four FGs planned in Kinshasa were organized with in school adolescent girls; one was organized with in school male adolescents and one targeted out-of-school male adolescents. Due to the fact that we did not reach the required minimum number

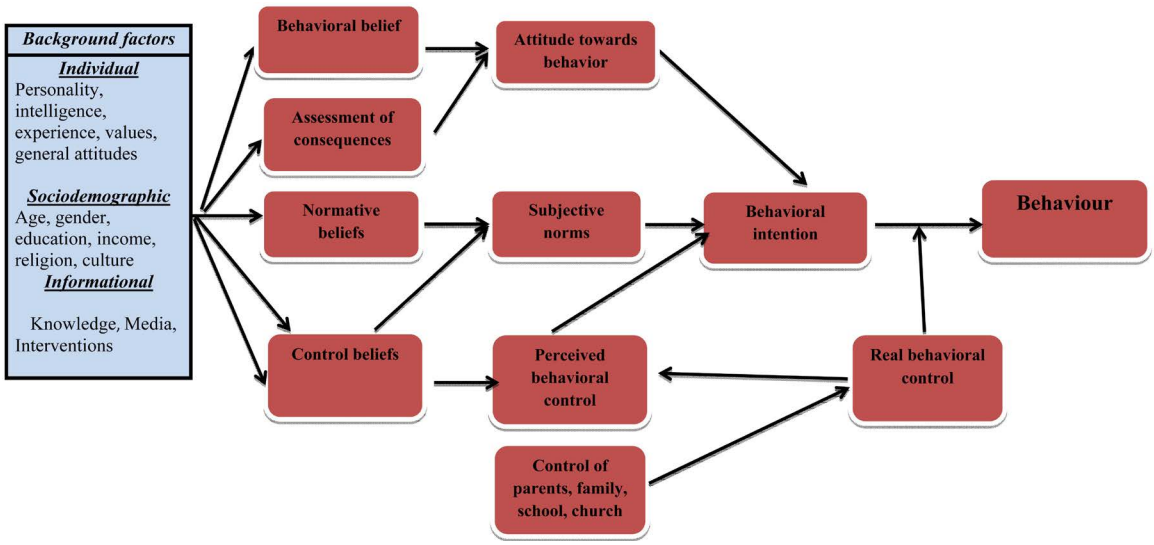

Figure 1. Reasoned action model of Fishbein and Ajzen, 2011.

of participants, we were not able to organize the FG with out-of-school adolescent girls. Socio-demographic characteristics of teenagers interviewed for this study are shown in Table 1.

The teachers of the FLEC were recruited among those teaching in the 3rd, 4th, 5th and 6th grades. We interviewed at least one teacher per visited school. The main criterion for selecting teachers was their availability at the time of the survey and the fact that they were actually teaching the FLEC to adolescents aged 15 - 19 in the aforementioned classes. Table 2 describes the socio-demographic characteristics of the teachers interviewed through this study.

Table 1. Socio-demographic characteristics of adolescents who participated in focus group discussions.

Variables	Kongo Central		Kinshasa	
	Male	Female	Male	Female
Nb. of focus groups	1	1	2	2
Nb. of participants	12	12	24	14
Age Groups (years)	15 - 19	15 - 17	15 - 19	15 - 18
Educational status				
Level 3 High school	3	0	0	0
Level 4 High school	5	12	11	14
Level 5 High school	4	0	0	0
Not in school	0	0	13	0
Religion				
Revival Church	8	8	9	3
Catholic	0	2	6	4
Protestant	0	0	2	4
Other	4	2	5	3
Any	0	0	2	0
Tutor				
Two parents	6	7	15	8
One parent	2	3	4	2
Others	4	2	5	4

Table 2. Sociodemographic characteristics of the teachers who participated to the semi-structured interviews.

N°	Marital status	Level of education	Seniority	Nb. of courses provided	Nb. of schools per teacher
1	Married	History and social sciences graduate	16 years	2	2
2	Married	Architecture graduate	1 year	2	1
3	Divorced	Social sciences graduate	9 years	2	1
4	Single	Student	2 years	2	1
5	Single	Economics graduate	5 years	4	3
6	Married	Law Degree	2 years	3	1
7	Married	Biology-chemistry graduate	20 years	2	1

2.3. Data Collection Techniques and Procedures

The six FGs were homogeneous, made up of 7 to 12 adolescents grouped according to their educational status, gender and place of residence. Using an interview guide, in school adolescents were interviewed after leaving school, for no more than two hours. The FG session with out-of-school adolescents took place for around two hours from a meeting room located near their home. The FLEC teachers were interviewed at the school place for a duration of 1:30, using another interview guide. All conversations were recorded on the dictaphone.

2.4. Interview Guide

An interview guide for the FGs was developed based on the aforementioned reasoned action model. The main themes addressed in this guide focused on knowledge of FP methods, sources of information in SRH and FP; practices (behavior) of adolescents in SRH and FP; contraceptive attitudes and preferences (beliefs); the role of schools and family members in the comprehensive sexuality education of adolescents and the possible use of FP services and contraceptive methods by adolescents.

The teachers' interview guide mainly included themes related to teachers' knowledge in SRH and FP, the individual attitudes towards contraception; and the teacher's attitude towards the demand of FP services by adolescents. The second group of themes was intended to understand the content of the FLEC taught at school and the process that led to the establishment of this training program. To carry out these analyzes, we relied on the guidelines for comprehensive sexuality education issued by UNESCO [15].

2.5. Quality Control and Data Analysis

Qualitative data were analyzed following a deductive approach, using Atlas Ti software with reference to the theoretical framework of Fishbein and Ajzen. They were first analyzed by FG and semi-structured interviews and by theme in order to identify the thread of ideas. The data were then analyzed grouped for all FGs and all semi-structured interviews. From each theme (knowledge, attitude and practice on FP), we selected open and axial codes that helped to process with the analysis. We split the data, followed by their analysis for differences and similarities. We analyzed respondents' answers to identify similarities through keyword research; similar concepts were labeled with the same name. Each concept was then defined in terms of a set of discrete properties and dimensions to add clarity and understanding. Open codes consisted of highlighting what had been reported multiple times, as well as aspects of behavior taken for granted. With axial codes, it was possible to create new sub-topics by grouping together sentences and words. By using axial coding, we were able to indicate how connections are made between categories and subcategories thus created. The second part of the analytical process dealt with the differentiation between open and axial codes. The dissimilarities were analyzed to understand the essence

conveyed through the key words of the interviewees. The themes appearing in the results section are from open and axial codes.

To understand the organization of the teaching program of FLEC taught at school and the process that led to the establishment of this training program, we analyzed the course preparation registers of targeted teachers; and then, we discussed with teachers and students concerning the content of the course.

Before their dissemination, the results of this study were discussed with students and teachers from a high school. This procedure made it possible to validate the results by further improving the presentation.

3. Results

3.1. Participants' Knowledge, Attitudes and Practices toward the Contraception

The results cover three themes that could explain the barriers to initiatives aiming to improve contraceptive use among adolescents.

Knowledge and sources of information on contraception

No significant difference was noted between in-school and out-of-school adolescents regarding their knowledge and sources of information on contraception. Almost all adolescents knew the risks of unprotected sex. They allude to the risk of unwanted pregnancy and sexually transmitted infections (STIs) such as HIV-AIDS. As for ways to prevent the risk of unwanted pregnancies, adolescents cited periodic abstinence, pills and male condoms. However, no sexually active adolescents, both in and out of school, had a negative opinion about the use of modern contraceptive methods. A teenager said this: "*We can use condoms and other drugs advertised on television to protect against the occurrence of unwanted pregnancies but I believe that all this is not recommended for both boys and girls*, *condoms can lead to prostate disease*, *you just need to abstain*" **(TM, 16 years old, FG 5)**.

A significant portion of interviewees believed that it was better to abstain from sex in adolescence and to wait until adulthood or marriage to practice sex. One teenage girl confided in saying this: "*A minor is still irresponsible*, *he does not know how to protect himself or how to take charge of himself in the event of a problem*; *care should be taken to refrain from sexual intercourse*" **(JK, participant 2, FG 2)**. However, sexually active adolescents favored the use of natural than modern contraceptive methods to prevent unintended pregnancies. Apart from the use of condoms, they believed that modern contraceptive methods are not free from risks to their health. To do this, they preferred to use the traditional methods they had heard about. A teenage girl said the following: "*The girl must know how to calculate her ovulation periods*, *this protects better than the drugs and condoms which can make the woman sterile*" **(MN, 18, FG 1)**.

Sexual abstinence seems to be imposed on some adolescent girls by the family and the society. This idea was indirectly reflected by the superfluous reasons put forward when adolescents were asked to justify their opinion towards absti-

nence. The age of majority was falsely considered by some of them as a protective factor against the risks of unprotected sex. Adolescents linked age to responsibility for actions and their health consequences. A school-going teenager confided in these terms: "*For me, young people are not prohibited from having sex, but we are asked to wait until the age of* 18 *to do so. There is little risk when a teenager has sex from the age of* 18. *Girls who have sex at* 15 - 16 *years old this is not good, you just have to wait because before that age when the girl gets pregnant, the boy author of the pregnancy is irresponsible, he will push to have an abortion and that poses problems*" **(NA, 16 years old, FG 3)**.

According to the interviews with the FLEC's teachers, contraceptive methods, even the most common ones, were little known among many of them. In their majority, they cited the periodic abstinence and condoms as the most known contraceptive methods. However, self-observation methods; interrupted coitus; intra-uterine device (IUD); spermicides, pills and implants were cited by one in three interviewees.

The sources of information on SRH differed depending on whether it was boys or girls. Most male adolescents cited the school, friends and the media (internet) as the main sources of SRH information; adolescent girls added their mothers, older sisters and friends among their sources of information. Parents, especially fathers, were not considered as a reliable source of information on SRH. The majority of teens did not confide in their fathers when they needed information about SRH. Some encountered a negative attitude of their father as reported by a teenager: "*A neighbor got pregnant, when I asked our daddy how can a young girl protect herself from unwanted pregnancies, daddy said to me: why do you want to know, to go to practice?*" **(BK, 4th scientist)**. For teachers, the main sources of information on SRH for adolescents are phones, the internet, school, diffuse education, media and movies. Teachers were aware that the FLEC does not address certain concerns raised in class by teenagers as shown through below statement: "*School is not enough today to inform adolescents about FP, it is especially the street, street education that influences the behavior of adolescents*" **(Teacher 7, 20 years of seniority)**. Although they teach this course, they are aware that the current content of the FLEC program has little influence on the SRH knowledge and behavior of adolescents. Another teacher declared: "*The FLEC doesn't influence teens much today, rather, it is diffuse education that has more influence on adolescents, the school gives the FLEC but the children are more informed by the media, the colleagues, and the other people especially concerning the problems not addressed during the course, at school we are limited, but in the city it is more*" **(Teacher 4, 2 years of experience)**. The school was the preferred source of information on SRH for adolescents, followed by parents; caregivers were preferred especially by out-of-school adolescents. For 4th and 5th year high school students, the FLEC does not address certain SRH concerns because some teachers refuse to answer these concerns.

Attitudes and practices towards contraception

Adolescents and teachers were not in favor of the use of contraceptive me-

thods, apart from natural (traditional) methods. They had an unfavorable attitude towards the uptake of modern contraceptives. A teacher said the following: "*I don't think a* 15, 16, 17*-year-old teenager can use a FP method, they sometimes use condoms to avoid giving birth*" **(Teacher N˚5, Kinshasa)**. They do not intend to use modern contraceptive methods in the future or to advise them to family members: "*I personally use the natural method by calculating the date of my wife's menstruation, I do not use other methods such as condoms. At home, I insist on abstinence, I refuse to allow children to use condoms, otherwise they will have a taste for sex; me their daddy if I live to this age it is because I behaved well in my life, I never had to have sex anyhow, since I studied at university I had the decision to have only one woman in my life*" **(Teacher N˚7, Kinshasa).** The use of contraceptive methods was linked to knowledge and attitudes towards these methods. When asked about what contraceptive methods he knew; a teacher said the following:

"*I know abstinence; I have no idea about the leftover methods; I am single and I abstain from sex; I personally have never used contraceptive methods; these methods are for the married, those who live as a couple*" **(Teacher N˚5, Kinshasa)**.

3.2. Content of the Family Life Education Course

The MPSTE is responsible for developing the curriculum of the FLEC in high schools. However, in visited schools, no official curriculum for the FLEC was available. Teachers developed a local training program by taking into account their own knowledge. During discussions with teachers and pupils, various programs of the FLEC were found, depending on the type of school and the class. The FLEC was taught from the 1st to the 6th grade in the majority of high schools. In a few schools, the FLEC was taught from the 3rd to 6th year of high schools. We tried to bring together different themes that were addressed in each class of high school by grouping together the data obtained from the review of teaching programs and interviews with students. Table 3 summarizes local programs of FLEC developed by teachers in visited schools.

Table 3. Content of the Family life education course as developed by the teachers of high schools of Kinshasa and Kongo Central provinces.

1st and 2nd year	3rd and 4th year	5th and 6th year
▪ General introduction; ▪ How to approach a friendly relationship so that this friendly relationship cannot turn into a romantic relationship; ▪ The consequences of romantic relationships (pregnancy); ▪ How we can clean the body	▪ The sex, what are the consequences, at what age a girl can get pregnant; ▪ How to avoid infections and how to behave; ▪ How to preserve and protect oneself	▪ General introduction; ▪ Virginity; ▪ Chastity; ▪ Wedding; ▪ Divorce; ▪ The importance of the life education course; ▪ A student's responsibility for his or her survival
Course duration: 45 minutes per week and 30 hours for the year	Course duration: 45 minutes per week and 30 hours for the year	Course duration: one hour per week and 35 hours per year

The training programs varied according to the schools and according to the basic training of the teacher. According to the majority of adolescents, the training revolved around the following points: abortions, virginity, chastity, HIV AIDS, risk of early childbirth, responsible sex, marriage. These are the superficial concepts of preventing unintended pregnancies. Table 4 analyzes the content of the training program in SRH applied in schools in the light of the guidelines given by UNESCO.

It emerges from this analysis that certain important topics are not generally

Table 4. Analysis of the DRC's family life education course content in the light of the guidelines issued by UNESCO.

Nb.	Structure of the comprehensive sexuality education according to UNESCO	Theorical content of the training program for adolescents aged 15 to 19	Topics integrated in FLEC program in the DRC
1.	Interpersonal relationships	Families	No
		Friendly, romantic relationships and romantic	Yes
		Tolerance, inclusion and respect	Yes
		Long-term commitments and parenthood	No
2.	Values, rights, culture and sexuality	Values and sexuality	No
		Human rights and sexuality	No
		Culture, society and sexuality	No
3.	Understanding the concept of gender	Social construction of gender and gender norms	No
		Gender equality, stereotypes and prejudices	No
4.	Violence and security	Gender-based violence	Yes
		Violence	Yes
		Consent, privacy and physical integrity	Yes
		Safe use of information technology and communication (ICT)	No
5.	Skills for health and well-being	Standards and peer influence on sexual behavior	No
		Decision making	No
		Communication techniques, of refusal and negotiation	No
		Media literacy and sexuality	Yes
		Finding help and support	
6.	Body and human development	Anatomy and physiology sexual and reproductive	Yes
		Reproduction	Yes
		Puberty	Yes
		Body image	Yes
7.	Sexuality and sexual behavior	Sex, sexuality and the sexual life cycle	No
		Sexual behavior and sexual response	No
		Pregnancy and prevention of pregnancy	No
8.	Sexual and reproductive health	Stigma associated with HIV and AIDS, treatment, care and support	Yes
		Understanding, taking into account and reducing risk of STIs, including HIV infection	Yes

addressed in class throughout the training cycle of students in the field of comprehensive sexuality education. In the topic of pregnancy and prevention of pregnancy, students are taught to abstain from sex by observing chastity. Contraception was not specifically discussed in class, for example, with regards to its advantages and benefits for the health of women, the family and the community. In addition, this course could be an opportunity to improve adolescent knowledge of natural (traditional) contraceptive methods with a view to improving their correct use. However, some teachers find it dangerous to teach FP concepts to students according to their statements: "*Teaching FP is a serious problem, there are students who have already had sex; others have not yet reached this stage, they must be taught to avoid sex, physical abstinence, because even if we use condoms it can rupture and pregnancy can intervene. Even the use of drugs, I don't agree with that; me when I entered college to study, I was told that all girls are sick, even if we use a condom it can break and you will get sick*" **(Teacher 6, 2 years of experience)**.

The data collection also helped to find that teaching the FLEC did not benefit from the follow-up by the inspectors of the education service as this is the case of other courses. All interviewed teachers declared that for years, they had never received visits from school inspectors; but for other courses like biology, microbiology, science, the inspectors supervise the teacher because they have the schedule. A teacher said: "*I have not yet received a visit from the school inspectors, but for the other courses I teach in this school they supervise. In the FLEC sometimes they look outside glancing but coming into the room to attend as an official visit, no*" **(Teacher 6)**.

4. Discussions

Adolescents and teachers have little knowledge and misconceptions about contraception. These results indicate the probable low popularization of FP among adolescents and teachers. Misconceptions about contraception are not only recorded among adolescents and teachers; Lara *et al.* [25] in a study in eastern DRC, highlighted misconceptions about some modern contraceptive methods on the part of providers, users, and community members. Yoost *et al.* [26] reported that even in developed countries, misconceptions persist about IUD use, particularly among young people and nulliparous women. Apart from these observations, the critical attitude of health care providers and the lack of confidentiality may deter the use of FP by adolescents [27]. One of the obstacles to the uptake of contraceptives by adolescents is the low level of education [28] and limited knowledge in SRH which can lead to the use of ineffective and even dangerous methods of FP [1]. These observations are consistent with our finding; adolescents in school do not receive comprehensive information on SRH likely to modify their attitude towards FP. Most of the adolescent girls interviewed were aware of the exposure to the risk of unwanted pregnancy in cases of poorly controlled sexuality. However, this fact contrasts with their negative intention

towards contraceptives. It is probably for this reason that, in a context of low level of knowledge about contraception, they prefer to abstain from all sexual intercourse or from using condoms. This awareness is lower when compared to the results of Krugu *et al.* for whom girls who discussed sexuality with their mothers and received education on condom use at school had a favorable attitude towards condoms [29]. However, as also noted in our study, most adolescents have a negative attitude towards other FP methods [29] [30] and use condoms inconsistently [31]. Multi-level social determinants such as interpersonal (peers, partners and parents), community (social norms) and macrosocial (religion, teachings on premarital sex and limited access to quality care) condition the use of FP by adolescents [30]. The majority of teens interviewed were of Christian faiths, relying on people around them (mothers, peers) on matters of sexuality. Teens prefer their mothers and school for any need concerning the SRH counseling. The negative attitude of fathers was a barrier to accessing the right information on SRH and FP by adolescents. Open parental communication about sexuality issues at home, comprehensive sexuality education at school, and understanding the risk of not using contraception are protective factors in efforts to prevent unwanted pregnancies among adolescent girls [29]. In the event of insufficient information in SRH at home, the school can fill this gap if the lessons are coordinated and monitored by those responsible for national education. Unfortunately, the school does not provide enough information on FP; teachers' knowledge is poor, the official program of the FLEC is not available in schools and inspectors do not follow it. These observations suggest that little importance is placed on sexual and reproductive education for adolescents, yet the consequences of early and unprotected sex, such as STIs, unwanted pregnancies and abortions are among the causes of absenteeism in class or even dropping out at this age [32] [33] [34].

The 1994 International Conference on Population and Development (ICPD) recommended providing sexuality education and supporting youth-friendly SRH education and services to improve adolescents' knowledge [35]. This recommendation is not followed in the DRC. Strong bonds between adolescents and parents, between adolescents and family, and perceived ties to school, have been shown to protect adolescents from risky health behaviors. One observation indicates that parents' expectations of academic success were associated with lower health risk behaviors; similarly, parental disapproval of early sexual onset was associated with a late age of onset [36]. Adolescents and teachers have expressed their intention to use natural contraceptive methods, known to have high failure rates if misused. According to the World Health Organization (WHO), the effectiveness of most natural FP methods remains quite high, varying from 90 to 98% if the method is mastered and well applied by the couple, the interrupted coitus method being the least effective, at 73%. The success of the application of natural methods depends largely on the level of education, knowledge and practices of the users [37]. The low level of education in SRH and the low level of knowledge about FP methods that we have found do not guarantee

optimal use of natural methods, although preferred by adolescents. The occurrence of high-risk pregnancies, unwanted births or consecutive induced abortions currently reported in the DRC may be explained following the aforementioned observations [19]. The many knowledge gaps in contraception underscore the need to find out how best to design effective interventions for adolescents and how best to implement them [35]. One of the possible solutions is to improve teachers' knowledge in SRH and FP and update training programs for adolescents. Some teachers, due to their basic training, do not have a profile required to teach the FLEC, unless they are trained. This observation associated with the fact that teachers do not benefit from in-service training could explain the insufficiency of the content of the FLEC they are called upon to prepare. To sustainably improve knowledge of adolescents and teachers in SRH and contraception, the legal environment needs to be improved. Mpunga Mukendi *et al.* [38] in a recent study showed that the DRC has not yet developed laws and regulations that could make compulsory the provision of SRH information and services to adolescents. The adoption of adapted laws and regulations could help to improving the quality of SRH information and services provided to adolescents by the authorities of the MPSTE as well as the authorities of the ministry of health.

Strengths and Limitations

This study was conducted in two provinces, which are not necessarily representative of the DRC. However, one of its strengths is that we combined interviews with both teachers and students as well as the review of the FLEC programs. The study also took place in Kinshasa, the capital of the DRC and headquarters of the central administration. The results were validated with the interviewees and one of the provincial sub-divisions in charge of education.

5. Conclusion

This study showed that adolescents and teachers have little knowledge on FP. Misconceptions about contraception lead to the use of ineffective practices in preventing unintended pregnancies. Apart from the fact that school and parents are much preferred as sources of FP information, the content of official program of the family life education course (FLEC) is inconsistent with the guidelines of comprehensive sexuality education suggested by UNESCO. Also, official FLEC program is not available in schools. In order to improve FP knowledge, attitudes and practices, a teacher training program should be developed and the content of the FLEC improved, formalized and regulated by the authorities of the Ministry of Primary, Secondary and Technical Education.

Ethics Approval and Consent to Participate

The study protocol was approved by the ethics committee of the Kinshasa School of Public Health under number ESP/CE/027/2018. With the age of majority set at 18 in the DRC, each adolescent under the age of 18 previously gave the informed assent and the guardian signed an informed consent. The study

was authorized by school officials.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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