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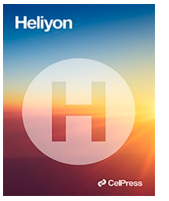

Research article

# Provision of sexual health education in secondary schools: A multidisciplinary lens of stakeholders in southern highlands, Tanzania

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ABSTRACT

*Introduction:* School-based sexual health education reduces risky sexual outcomes for in-school adolescents such as unintended premarital pregnancies, unsafe abortions, increased risk of contracting sexually transmitted infections (STIs) including HIV and AIDS, early parenthood, a massive dropout from schools and untimely deaths. Despite the teaching of sexual health education in secondary schools, adolescents in Iringa Region are being exposed to increasing risks of sexual behaviours such as premarital sex, multiple sexual partners, and unprotected sex. This study examines stakeholders' attitudes and beliefs toward providing sexual health education in secondary schools in Iringa Region, Tanzania.

*Methods:* A qualitative approach under cross-sectional design was used. A purposive sampling technique was applied in selecting the Districts and participants for the study while simple random was used in the selection of schools. The participants were purposively selected depending on their position and knowledge of the subject matter. This study had 50 participants in total, 36 of them were teachers (6 from each school) who participated in focus group discussions (FGDs). After that, in-depth interviews with 14 participants were also conducted including 6 headmasters/mistresses, 6 healthcare professionals and 2 District secondary education officers. All FGDs and in-depth interviews used standardized questions to elicit information. The collected data were audio-recorded through tape recorders, transcribed, and translated into English. An initial coding matrix was developed and refined throughout the coding process. Transcripts were coded and analyzed using the content analysis approach.

*Results:* Findings from this study revealed all stakeholders having positive attitudes toward the provision of sexual health education in secondary schools. Results also revealed participants in favour of adolescents being taught several topics except for homosexuality. Findings on the appropriate age to start learning sexual health education revealed participants having trouble in fixing the right age, however, they said, at least 5 through 10 years before a child initiates sexual activity.

*Conclusion:* The study concludes that stakeholders in the study areas have a positive attitude towards the provision of sexual health education in secondary schools and want students to be taught a wide range of topics before they initiate sexual activity. It is recommended that age-appropriate comprehensive sexuality education be given to teenagers to provide them with the knowledge they need to make informed decisions about their sexuality. This requires concerted

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efforts from the school, government and community involvement in the provision of sexual health education to in-school adolescents.

## 1. Introduction

Adolescence can be described as the period between the latter stage of childhood and the early stage of adulthood. The World Health Organization [1] defines adolescence as a period between the ages of 10 and 19 years and it refers to boys and girls falling within this age category. This age category is significant in shaping them as they undergo physical, psychological, emotional and behavioural changes [1,2]. In this period adolescents develop curiosity and learn various things including exploring the world around them in which some find out what sex is really like. Family as the primary agent of socialization should be at the forefront of helping adolescents learn sexual education, in oftentimes, it does not discuss issues that have to do with sexuality with them. This is done owing to the beliefs of parents and other members of the family that doing so would expose most adolescents to risky sexual behaviours [3,4]. So, they keep them in perpetual ignorance about their sexuality with the belief that would prevent them from immoral behaviour [5]. Equally, a lot of children find it uncomfortable having conversations about sex education with parents because the subject is taboo in most homes. This has necessitated many adolescents to resort in finding information from their peers and the current grown technological permissive popular mass media including the internet, television and cell phones which often mislead them and cause more confusion [6,7].

A wide range of studies [2–4,8,9] document that recently, most adolescents have been facing several sexual risks including unplanned sex, sexual coercion, unwanted pregnancy, unsafe abortion, illegitimate children, contact with sexually transmitted diseases (STIs) including HIV/AIDS and untimely deaths. The burden of first birth among school-going adolescents is significant including being expropriated from schools, causing intergenerational cycles of poverty, poor education and unemployment, shattering self-life dreams, family and the nation. According to the World Health Organization [10], 21 million girls aged between 15 and 19 years and 2.5 million give birth before their fifteenth birthdays. Most of these girls live in low- or middle-income countries. The number of adolescent pregnancies is projected to increase globally by 2030, as the total population of adolescents continues to grow, with the greatest proportional increases in Western and Central, Eastern and Southern Africa [11,12]. The projected increase in adolescent pregnancies is likely to be more prevalent in sub-Saharan Africa (SSA) which already leads the world in teen pregnancies and child marriage [13,14].

As one of the countries in Sub-Saharan Africa, most adolescents in Tanzania, Iringa Region in particular have sex before turning age 18 [14,15). A range of factors such as the absence of parental care and guidance, peer pressure, ignorance of sex-related issues, financial hardship, cultural and religious beliefs and dire poverty in some families direct the majority of adolescents to earlier sexual debut to get the basic amenities such as food, clothing, housing and treatment [9,16,17]. These factors have exposed many adolescents to sexual risks such as unintended pregnancy, contracting STIs inducing HIV, early mother and fatherhoods, dropout from schools and untimely deaths [10,15].

To prevent adolescents from these risks, the need to develop proper attitudes, beliefs and values, acquiring the right information, motivation, skills and critical awareness on various issues including education on sexual health is essential during adolescence [17–19]. According to WHO [1], sexuality education encompasses education about all aspects of sexuality including information about family planning, reproduction, body image, sexual orientation, sexual pleasure, values, decision-making, communication, dating, relationships and sexually transmitted infections. This important role begins in infancy and as children go through each stage of growth and development. Since adolescents spend more time at school than they do at home, the teaching of sexual health education should be effectively taught at school rather than in any other place. Therefore, it is very important to incorporate sexuality education into the national curriculum [17]. This becomes necessary to prepare adolescents for their adult roles in line with acceptable societal standards and to also empower young people to have greater control over their sexuality and reproductive life to their benefit both socially and economically. It is also a means of safeguarding or protecting the youths against the consequences of sexual ignorance as well as preparing them for responsible life [17].

In Tanzania, studies on stakeholders' attitudes towards sexual health education exist. However, most of these studies [18,20,21] concentrated on parents' and adolescents' views on the provision of sexual health education in Tanzania schools. A paucity of literature from other stakeholders such as teachers, healthcare workers and administrators' perceptions on the provision of sexual education in schools prevails. The current study therefore intends to examine the perspectives of secondary school teachers, healthcare workers and administrators towards the provision of sexual health education in schools in Iringa Region, Tanzania. Specifically, the study covers on the attitude of teachers, healthcare workers and administrators toward the provision of sexual health education in schools, the appropriate age to start learning sexual health education to children, who should receive the education. Moreover, the findings from the study would shape the government/policymakers in making the right decision and will serve to incorporate sex education into the national curriculum to protect adolescents against the consequences of sexual ignorance.

## 2. Material and methods

### 2.1. Description of the study area

Iringa Region as shown in Fig. 1 lies in the southern highlands of Tanzania Mainland between latitudes 6° 55' and $9^0$ 00' and

longitudes 33° 45' and 36° 55' East of Greenwich. The Region has a total area of 35,743 km$^2$. Administratively, Iringa Region is divided into three Districts namely Iringa, Mufindi, and Kilolo with four councils namely Iringa District Council, Mufindi District Council, Kilolo District Council and Iringa Municipal Council [22]. Iringa Municipal and Iringa District Councils were purposively selected for this study. Iringa Municipal covers an area of 162 square kilometers with 14 wards and 162 streets varying in size significantly. Iringa Rural District as the other study area has a total of 20,413.98 km$^2$ which is about 35 % of the total area of the Iringa Region. The District lies between latitudes 7° 0' and 8° 30' south of the Equator and between longitudes 34° 0' and 37° 0' east of Greenwich. The District is divided into 6 divisions and 25 wards with a total of 123 villages and 718 hamlets distributed unevenly [22].

### 2.2. The study design and sampling procedures

This study employed a qualitative approach under a cross-sectional research design. The design was used because it allows the collection of data from different groups of participants at a time (Maree, 2007). A purposive sampling was used to select Iringa Region and its two Districts of Iringa Municipal and Iringa Rural District because of some defining characteristics that make it suitable for this particular study. These encompass high prevalence rates of sexual and reproductive risky outcomes among in-school adolescents such as increased cases of unplanned pregnancy, unsafe abortion, sexual abuse and high levels of STIs including HIV/AIDS infections (Omondi et al., 2019; UNICEF, 2015). Though all adolescents in Tanzania are at high risk of sexual health problems, those of Iringa are more vulnerable because the Region ranks second in HIV/AIDS cases making its people including adolescents to be more exposed to HIV infections due to high sexual interactions between adults and youth. A study by UNICEF (2015) shows that the Region has higher proportional rates (8.2 %) of HIV infections among adolescents aged 15–19 years than that of the nation (3.7 %) of the same age group. Not only that but also unplanned pregnancies among adolescents are high (35 %) and reported to have triggered existence of massive dropout of girls and boys from school due to unprotected sex. Dropouts and marriages are more rampant among girls than boys (UNFPA, 2018; UNICEF, 2015). Simple random and purposive sampling techniques were used in this study.

A simple random technique was applied in the selection of the study schools in the two Districts. All secondary schools in the two

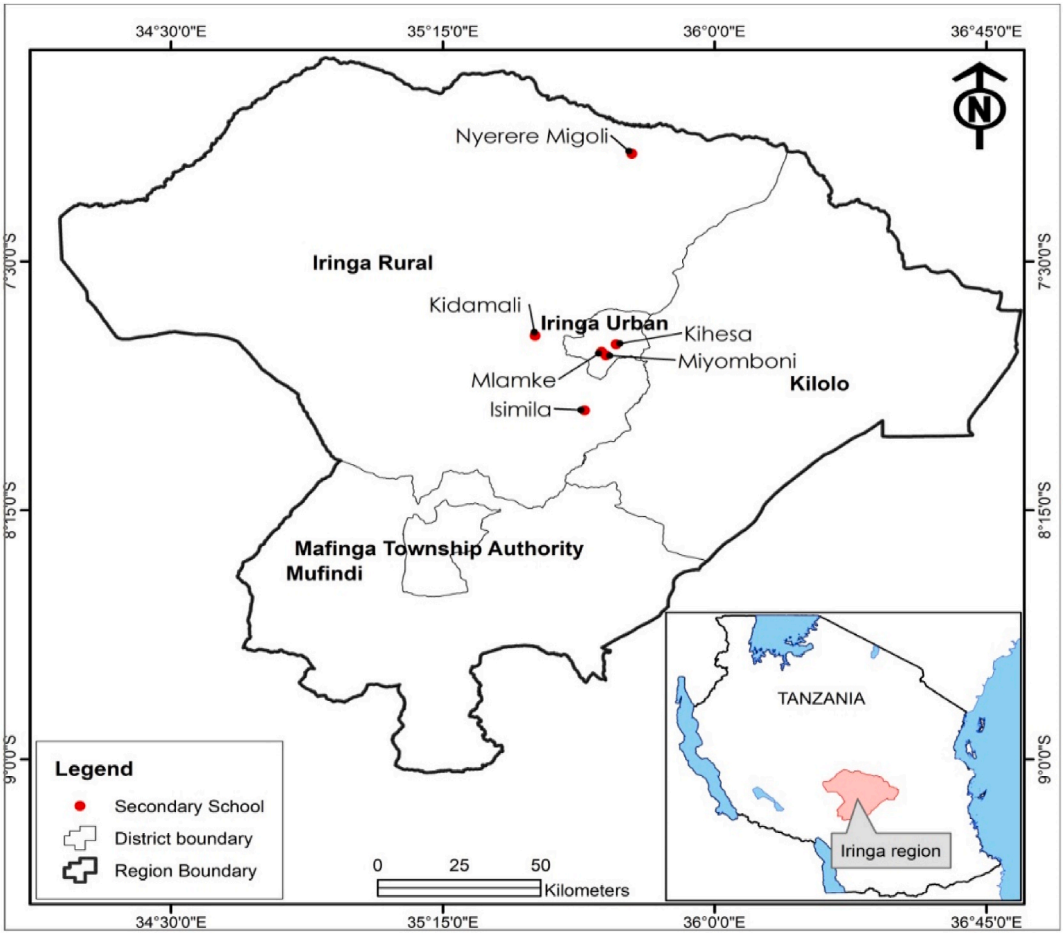


**Fig. 1.** Location of Iringa, administrative area and the sampled study schools.
**Source**: GIS Lab, IRA, University of Dar es Salaam

Districts with more than 200 students each were considered for study. Schools with a large number of students imply high interaction among learners and teachers and it has complex management roles as compared to those with few students/teachers hence being suitable for this study. Iringa Municipal has 26 secondary schools while Iringa District has 32 secondary schools. For good representation of the study population, 10 % of all secondary schools from each District were taken resulting in a selection of 6 schools (3 from each District). The chosen sampling frame of 10 % is based on what is recommended by Kothari, (2004) thus, being representative for the study area. Names of all schools in each District were written on pieces of paper, mixed up in a box and one person was asked to pick one paper after another without replacement until the required number was achieved. The exercise resulted in the selection of Miyomboni, Mlamke and Kehesa secondary schools from Iringa Municipal and Kidamali, Isimila and Nyerere secondary schools from Iringa rural District for study.

Moreover, a purposive sampling technique was applied in the selection of the participants for the study. The participants were purposively selected depending on their position and knowledge of the subject matter under study. Specifically, teachers who were teaching subjects with contents of sexual health education from each school were selected to be used in FGD as they were thought to have pertinent information on the study topic. Thereafter, health workers from each school were also purposively chosen to be used in the in-depth interviews. Their selection was based on their experience with health-related matters in their schools hence thought to have all the information concerning the study topic. The last category was that of administrative officers, particularly school headmasters/mistresses and District education officers who were also purposively selected as they were overall leaders at the school and District level and hence were assumed to have general information on what is taught relating to sexual health education. Based on the criteria stipulated above, a total of 50 participants including 36 teachers (6 from each school), 6 headmaster/mistresses (1 from each school), 6 healthcare workers (1 from each District and 4 from the selected schools) and 2 District secondary education officers (1 from each District) were involved in FGDs and in-depth interviews. All FGD and in-depth interviews used standardized questions to elicit information. Table 1 presents the summary of participants involved in this study.

### 2.3. Data sources, collection and analysis techniques

This particular study used primary data collected through Focus Group Discussions (FGD) and in-depth interviews (IDIs) from participants who were selected purposively depending on their position and their knowledge on the subject matter under study. Focus Group Discussions were conducted among secondary school teachers and in-depth interviews were held with healthcare workers, headmasters/mistresses in the selected secondary schools and District Secondary Education Officers (DEOs) from the two Districts of Iringa Municipal and Iringa Rural Districts. Sounds were recorded by using a tape recorder and data obtained from these discussions were coded, qualitatively analyzed and arranged according to their thematic areas through content analysis. Specifically, results were classified into four main themes including socio-demographic characteristics of participants, stakeholders' attitudes on the provision of sexual health education in schools, perception on areas of sexual health education to be focused on and appropriate age to start learning sexual health education.

## 3. Results

### 3.1. Participants' socio-demographic characteristics

Results on socio-demographic traits of participants Table 2 demonstrate that 50 participants took part in the study. Age-wise, (21) participants were in the age range of (35–44 years), 15 were in the age group (25–34 years), 9 were in the age group (45–54 years) and a few (5) participants were aged (55 years and above). Sex-wise, the majority (34) were males and (16) were females. Based on literacy level, 35 participants had a first degree, 9 had a Diploma and 6 had a master's education. Religion-wise, 36 participants were Christians and 14 were Muslims.

### 3.2. Stakeholders' attitudes on the provision of sexual health education in schools

The focus group discussion (FGD) with teachers and in-depth interviews with headmasters/mistresses, healthcare workers and District secondary school education officers on attitudes towards the provision of sexual health education in schools were conducted to have their views on the matter as important stakeholders dealing with education in its entirety at schools. The discussions with

**Table 1**
Summary of participants involved in the study

| Categories of Participants | Iringa Municipal | | | Iringa Rural | | | Total participants | Percentages (%) |
|---|---|---|---|---|---|---|---|---|
| | Miyomboni | Mlamke | Kihesa | Kidamali | Isimila | Nyerere | | |
| Teachers | 6 | 6 | 6 | 6 | 6 | 6 | 36 | 72 |
| Headmasters/Mistresses | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 12 |
| Healthcare partners | 3 | | | 3 | | | 6 | 12 |
| District Secondary Education Officers | 1 | | | 1 | | | 2 | 04 |
| **Total** | **25** | | | **25** | | | **50** | **100** |

**Source:** Field Survey, (2023).

**Table 2**
Participants' socio-demographic characteristics.

| Variable name | Frequency (N = 50) | Percentage (%) |
|---|---|---|
| Age | | |
| 25-34 | 15 | 30 |
| 35-44 | 21 | 42 |
| 45- 54 | 09 | 18 |
| < 55 | 05 | 10 |
| Gender | | |
| Male | 34 | 68 |
| Female | 16 | 32 |
| Literacy level | | |
| Diploma | 09 | 18 |
| First degree | 35 | 70 |
| Masters | 06 | 12 |
| Religion | | |
| Christian | 36 | 72 |
| Muslim | 14 | 28 |

**Source:** Field Survey, (2023).

teachers involved those who teach Biology, Civics and General Studies in all the six surveyed schools in the studied areas. Results from FGDs with teachers indicated that participants had a positive attitude toward providing sexual health education in secondary schools. They were also in view that providing sexual health education to in-school adolescents is crucial, especially in the current time owing to the increasing early onset of puberty and high sexual risks among adolescents as reported by teachers during the (FGDs):

> *"… In my view, I see there is a need to provide sexual health education at schools to equip adolescents with the basic and correct knowledge on various issues relating to sexuality and sexual relations as most of them recently are engaging in sexual affairs at a very young age …."* (A male teacher, 38 years old from Kihesa Secondary School, Iringa Municipal during FGD).

> *"… Sexual health education is essential to be provided to adolescents to remove the myths on sexuality and sexual relations they might have learned through the media and from other people in the streets …"* (A male teacher, 42 years old from Isimila Secondary School, Iringa Rural during FGD)

> *"… Adolescents are in sexual relationships and some are in multiple relations leading to school dropout associated with pregnancies, especially to female students. So, sexual health education needs to be provided to school-going adolescents to make them realize their dreams in life …"* (A male teacher, 40 years old from Nyerere High School, Iringa Rural during FGD).

> *"… The education should be provided in schools because as they come from primary to secondary, you find them in pairs and many of them know many things about sexual issues more than what we think of them. So, schools are only places where students could be taught on the correct knowledge …"* (A female teacher, 37 years old from Mlamke Secondary School, Iringa Municipal during FGD).

> *"… there is no way sexual health education cannot be provided in schools. This will help to filter out some wrong information on sexuality adolescents learned in various sources particularly that of their peers and from different media …"* (A male teacher, 46 years old from Kihesa Secondary School, Iringa Municipal during FGD).

> *"… Recently, children enter puberty earlier and they do not know what to do when they are in that state. So, they need this kind of education to help them solve challenges happening to them on sexual and sexuality …"* (A female teacher 38 years old from Kidamali Secondary School, Iringa Rural during FGD).

Moreover, in-depth interviews with headmasters/mistresses from the selected schools were also performed and showed headmasters/mistresses to have positive attitudes toward the provision of sexual health education in secondary schools as reported by participants during the (IDIs):

> *" …. Sexual health education is important and needs to be provided to adolescents in schools to protect them from sexually related challenges such as early pregnancies and sexually related diseases including HIV/AIDS …"* (A headmistress, 53 years old from Miyomboni secondary school, Iringa Municipal during IDI).

> *"… Sexual health education should be taught in secondary school because once students finish their studies many of them do not get the chance to further their education. So, they end up giving birth and worse enough before marriage. With this education, they can be in a position to protect themselves against sexual outcomes …"* (A headmaster, 49 years old from Kihesa Secondary School, Iringa Municipal during IDI).

> *"… Students are in relationships and some have street partners older than themselves. So, leaving them without sexual health knowledge implies letting them die with sexually infectious diseases such as HIV given the position of Iringa nationwide in terms of infection being high …"* (A headmistress 51, Nyerere High School, Iringa Rural during IDI).

*"… Of course sexual health education is vital and it needs to be provided in secondary schools as it provides adolescents with crucial knowledge that could protect them from sexual-related problems while schooling …"* (A headmistress, 49 years old from Kidamali Secondary School, Iringa Rural District during IDI).

*"… Adolescents in secondary schools need to be trained in sexual health education because many of them are in relationships and face sexual health problems without knowing how to solve them …."* (A headmaster, 47 years old Isimila Secondary School, Iringa Rural during IDI).

*"… In this world of science and technology where information is easily available through various media, adolescents have to be given the correct information on sexual health. Otherwise, a larger number of them will be receiving improper information that will ruin their health and therefore their dreams …."* (A headmaster, 37 years old, Mlamke Secondary School, Iringa Municipal during IDI).

Nevertheless, in-depth interviews with healthcare workers from Iringa Municipal and Iringa rural districts and those of school nurses in the four of the selected schools for study yielded similar results of healthcare workers having positive attitudes toward sexual health education in schools. Also, both health workers in the two Districts opined that adolescents in the Iringa Region are at high risk of sexuality-related problems as the Region is a hotspot for HIV/AIDS and ranks second after the Njombe Region. Additionally, old men and women are targeting young people for sexual activities with the assumption that they are not infected with sexually transmitted infections including HIV. Moreover, pregnancies and school dropouts among adolescents in the Region are rampant with many adolescents engaging in more than one relationship. In this regard, comprehensive sexual health education should be provided to school-going adolescents as it could help stem unintended pregnancies and prevent them from sexually transmitted diseases including HIV/AIDS and its associated problems as highlighted by health workers during (IDIs):

*" …. .This education has to be taught in schools so that adolescents are provided with the correct knowledge to protect themselves from the increasing tendency of old people to engage in sexual affairs with adolescents resulting in unintended pregnancies leading to high dropouts from schools for some students. Also, it could help in protecting themselves from sexually transmitted diseases especially HIV/AIDS which is much found in our region and make them attain their life goals …"* (A female, 41 years old, healthcare worker from Iringa Municipal during IDI).

*" …. The impact of not teaching sexual health education to adolescents is greater than teaching it as many of them today start sexual activities much earlier than it used to be to their parents. They better be taught and better before they initiate sexual activity and the teachings need to be extensively to create awareness before they embark in the sexual relations activities …"* (A female, 48 years old, healthcare worker from Iringa Rural District during IDI).

*"… I have a positive attitude on sexual education to in-school students. My opinion is that sex education should be delivered to school students as early as possible. This would help them to have enough time to know and understand issues related to sexual health and the associated impact and be able to rid of its related problems …*" (A female, 36 years old, a school nurse from Isimila Secondary School, Iringa Rural District during IDI)

*"… It is very effective when sex education is delivered in schools. Adolescents will have to know what to do and what not at an early stage. They have curiosity about sex related issues and some are doing. Most school adolescents in here don't have knowledge about sexual health matters as a result most of those who are sexually active are becoming pregnant and drop out of schooling …"* (A female, 42 years old, a school nurse from Nyerere Secondary School, Iringa Rural District during IDI).

*"… Adolescents have curiosity about sex and sexual matters and many of them are in relationships. In addition, children also learn about sexuality from various sources such as the internet, social media, and television where some end up receiving incorrect information. So, if this subject is effectively taught in school, they will have to receive proper knowledge that would help them in their relationships …"* (A female, 33 years old, a school nurse from Mlamke Secondary School Iringa Municipal during IDI).

*"… Some students are already in partnership and others have more than one partner. To help them they must be provided with comprehensive sexual health to prevent them from risks associated with sexuality …*"(A female, 44 years old, a school nurse from Kihesa Secondary School, Iringa Municipal during IDI**).**

Furthermore, the views of District secondary education officers on the provision of sexual health education in secondary schools were also desired. Therefore in-depth interviews from DEOs of the two Districts were conducted where the findings revealed equally same results where both officers were in favour of the provision of sexual health education at schools. They also reported that the provided sexual health education in school needs to be comprehensive in the sense that students have to receive a complete dosage of it so that they have complete knowledge for awareness creation and use. The achieved knowledge will be very useful in solving the challenges related to sexuality and its associated problems as highlighted by DEOs during the (IDIs):

*"..Sexual health education is provided and should continue to be given in schools especially secondary schools because most adolescents at this stage experience the highest level of puberty, and many of them are in relationships as compared to the time in primary schools. They need to be taught everything about sexuality effectively so that they can choose which knowledge to use where and how in their relationships …"* (A female, 45-year-old, District secondary school education officer from Iringa Municipal during IDI).

*"… Sexual health education should be taught in our schools and should be comprehensive. This will make adolescents have enough knowledge and skills necessary to solve the increasing problems relating to sexuality and sexual health …"* (A male, 51 years old, District secondary school Education Officer from Iringa Rural during IDI).

## 4. Perceptions on areas of sexual health education to be focused on in schools

Focus Group Discussions (FGDs) with teachers and in-depth interviews (IDIs) with healthcare workers and DEOs on the components of sexual health education to be learned in schools by adolescents were conducted. Results indicate teachers are in favour of adolescents being provided with a range of topics to have wider knowledge on sexuality but with the exclusion of some topics from the curricula and the addition of some other new topics. The components of which they felt that would make adolescents have a complete dose that would bring them into full adulthood aware and have enough knowledge on how to make a decisive decision about their sexual health and relationships include family life, the influence of peers, media, technology and other factors on sexual risk behaviours.

Moreover, other components as revealed by teachers are how to create and sustain healthy and respectful relationships, the benefits of being sexually abstinent and family planning. In family planning, teachers were in view that only condoms should be taught especially on the use and importance of using it consistently and correctly to prevent adolescents from both STIs and pregnancy. Teachers were also in view that other methods of contraception away from condoms particularly, the modern contraceptive ones should be avoided to be taught to adolescents as they could cause infertility in the future. Other topics suggested to be taught are communication and negotiation skills, how HIV and other STDs are transmitted and prevented and goal-setting and decision-making skills. Furthermore, teachers suggested topics such as health consequences of early sexual debut (HIV/STIs and pregnancy), the importance of limiting the number of sexual partners and how to access valid and reliable sexual health information as highlighted by teachers during the (FGD):

> *"… Yes, they need to be taught a wide range of topics including family life, the influence of peers, media, technology and other factors on sexual risk behaviour and how to create and sustain healthy and respectful relationships. Harmonization of these topics is essential so that they can be taught in one single subject of SHE instead of being taught in different subjects of Biology, Civic and General Studies. This makes it lack continuation …"* (A female teacher, 43 years old from Miyomboni Secondary School, Iringa Municipal during FGD).

> *" …. I think a lot has to be learned to make adolescents have a wide knowledge of sexual health and its associated hurdles. Topics should include the benefits of practicing abstinence and family planning but in this only condoms should be taught and the importance of using them consistently and correctly to prevent both STIs and pregnancy. And of course, having a subject that will deal with SHE only is vital to have all components under one roof and be taught like other subjects and have its own timetable …"* (A male teacher, 37 years old from Isimila Secondary School, Iringa Rural during FGD).

> *"… Other important topics include communication and negotiation skills, how HIV and other STIs are transmitted and goal-setting and decision-making skills. If possible, a need to have a subject that could have all these topics come together would make learning easier than what is being taught today in different subjects ….*" (A female teacher, 39 years old from Mlamke Secondary School, Iringa Municipal during FGD).

> *" …. There are more things to learn in SHE, adding to the list, adolescents need to be taught the importance of limiting the number of sexual partners, how to access valid and reliable SHE information and the health consequences of (early sexual debut, HIV/STIs and pregnancy,*" (A male teacher, 46 years old from Kidamali Secondary School, Iringa Rural District during FGD).

> *"… They have to be taught many things as suggested yes, but I think issues of homosexuality and modern contraceptives should not be taught because they are against our culture. Teaching modern contraceptives to school adolescents has an impact on their fertility as they could start using these methods at an early age. The only method that can be taught to adolescents is condom as it has nothing to do with hormonal changes and plays double roles of pregnancy prevention and at the same time protect them from STIs ….*" (A male teacher, 43 years old from Kihesa Secondary School, Iringa Municipal during FGD).

> *"… They should be equipped with topics such as gender and its roles, proper morals and behaviour, life skills, culture, personal hygiene and reproduction. All these topics should have their own modules where all topics are found rather than being taught in different subjects which is difficult to make follow up …"* (A male teacher, 37 years old from Nyerere High School, Iringa Rural District during FGD).

Furthermore, in-depth interviews with healthcare workers on what should be taught in the area of sexual health education in schools revealed healthcare workers suggesting adolescents to be taught comprehensive sexual health education to equip them with enough knowledge and skills that could help them stem problems associated with sexuality. The topics of their favour include good manners, puberty, gender identity, relationships, personal skills and sexual health behaviour. Other topics include contraception use and sexually transmitted diseases as reported during the (IDIs):

> *" …. Adolescents in schools have to be taught several sexual health components yes, but should be those that apply to their real life situations. Topics such as puberty and gender identity, relationships of the self, family and romantic. These are the things they have to learn but also, personal skills such as communication, boundary setting, negotiation and decision-making are the areas that need to be given much attention. …"* (A female, 41 years old, healthcare worker from Iringa Municipal during IDI).

> *" …. In school, adolescents have to be taught many components that could help them know who they are and those that could protect themselves from sexually related problems while at school and when in the streets or at home. The topics should include those related to pregnancy avoidance such as contraceptive use and they have to be taught all methods, and choosing which one to use will come later as they grow up. Also, topics of sexually transmitted diseases and how to avoid being infected is paramount or health-related barriers that may affect student learning …"* (A female, 48 years old, healthcare worker from Iringa Rural District during IDI).

*"… Personal skills such as communication, boundary setting, negotiation and decision-making while in relationships are the areas that need to be given much attention …"*(A female, 44 years old, a school nurse from Kihesa Secondary School, Iringa Municipal during IDI).

*"… The topic of sexually transmitted diseases and how to avoid being infected is paramount, safe sex practices and contraception use have to be delivered to adolescents to protect them from sexual related problems …"* (A female, 42 years old, a school nurse from Nyerere High School Iringa Rural during IDI).

*"… Teach them everything that could make them grow up as complete human beings in sexual issues. For instance, good manner, bodily changes as a result of growth, entering, maintaining a good relationship while being able to get out of an unsound relationship peacefully …"* (A female, 36 years old, a school nurse from Isimila Secondary School, Iringa Rural during IDI).

*"… Yes, sexual health education needs to cover several aspects, things like confidence while in relationships, gender roles and contraception for the prevention of all kinds of sexually transmitted diseases. Helping them knowing these things will make them grow while confident in sexually related matters …"* (A female, 33 years old, a school nurse from Mlamke Secondary School, Iringa Municipal during IDI).

Notwithstanding, perceptions on what should be taught were also extended to DEOs of both districts to have their views. Results generated from in-depth interviews with DEOs depicted DEOs supporting the need for adolescents to be taught several components of sexuality and its related issues. They are also in favour of sexual health education having its subject and wider coverage just like other subjects to provide adolescents with the necessary skills to help them solve their related sexual health challenges as they grow up as reported during (IDIs):

*"… Extensive SHE components are required and should include reproductive systems and their functions, puberty and growth, respect, culture-proper morals and behaviours, life skills and family life to mention a few. Yes, it is high time now for SHE to have its subject because Biology as the subject with much SHE contents is too mechanical as it deals with animals and plants as well. So, it denies students to have a complete dosage …* "(A female, 45 years old, District Education Secondary Schools' Officer, Iringa Municipal during IDI).

*"… The SHE components need to be multidimensional to cover several sexual and reproductive health aspects such as family planning so that as they grow they will have to choose what methods they will have to use for the size of their family but also protecting themselves while in relationships and be able to resolve sexual related challenges …"* (A male, 51 years old, District Education Secondary Schools' Officer, Iringa Rural District during IDI).

### *4.1. Appropriate age to start learning sexual health education*

The study further gathered sentiments of teachers, healthcare workers and DEOs on the right age for the introduction of sexual health education to in-school adolescents. Findings from focus group discussions with teachers show that teachers faced difficulty in fixing the right age for the introduction of sexual health education to children. However, they suggested that a child should be introduced to sexual health content starting at age 7 through 10 years as highlighted by teachers during (FGDs):

*" ….Given the current situation of a globalized world and food availability, many adolescents mature early. So it is better to teach them sexual health education as early as possible around age 7. So, it should start at primary school levels so that students know the changes that might happen to them and fix them as they grow up …"* (A male teacher, 42 years old from Kihesa Secondary School, Iringa Municipal during FGD).

*"… I have a daughter of 4 years old and heard her one day asking her elder daughter of 6 years old; when our mom (who is me) will buy a new child for us to have a younger sister/brother. Her elder sister told her that mmh … if you saw a mom having a big tummy, our young sister/brother would be coming. So, you can imagine at 6 years a child knows processes on how a new child can be found {amused}. So, teaching should start as early as possible at least 7 years …*" (A female teacher, 45 years old from Miyomboni Secondary School, Iringa, Municipal during FGD).

*"… 9 years especially girls have to start learning sexual health education. This is because at this age puberty begins and inquiry ability among them come to its climax …"* (A male teacher, 39 years old from Mlamke secondary school, Iringa Municipal during FGD).

*" …. It should start at age 8, 9, or 10 years because at this age many of them are in transition to puberty. They need to learn issues relating to their body changes and their effects in relationships as they pave the way to puberty stage …."* (A male teacher, 37 years old from Kidamali secondary school, Iringa Rural District during FGD).

*" …. Sexual education has to commence at age 9 or 10 years, meaning staring at primary schools, because we receive them in secondary schools while knowing each and everything about sexuality …"* (A male teacher, 42 years old from Isimila secondary school, Iringa Rural District during FGD).

*"… waiting until they have higher ages means we will be late because they start learning these contents from other sources at their lower ages. Sources such as radio, television, and smartphones but in social media as well …"* (A male teacher, 37 years old from Nyerere High School, Iringa Municipal during FGD).

Moreover, the study was eager to know the proper age to start learning sexual health education from the healthcare workers' point of view. Results indicate healthcare workers face challenges in indicating the proper age, however, they suggested a bit lower age than what was proposed by teachers as highlighted during the (IDIs):

> *"… There is no proper age for learning sexuality as far as human being is concerned. Imagine, my 4 years old girl asking me … Mom, when you sleep do you hug Dad the whole night or do you just sleep? What comes to her mind is that something is going on between me and her father while in bed during the night, and this is sex. So, the right age probably to start teaching sexual health education in school should be at nursery 5 to 6 years old. However, the selection of the topic has to be made so that they are of their age. For instance, learning parts of the body and their functions and the likes …."* (A female, 41 years old, healthcare worker from Iringa Municipal during IDI).

> *"… Starting teaching sexual health education to adolescents when they are at secondary school shall be late. We know well our children, many of them have friends whom they call boyfriends and girlfriends right from primary school, and some have sex with older people in the streets. So, sexual health education should start being taught down from primary school standard four to five (8 to 9) years old with caution on what should be taught given their ages. …"* (A male, 48 years old, healthcare worker from Iringa Rural during IDI).

> *"… No right age. Any age is appropriate but for schools at least when a child reaches 7 years can be the right time to introduce sexual health contents …"* (A female, 42 years old, a school nurse from Nyerere High school, Iringa Rural during IDI)

> *"… As for me, I can suggest the introduction of sexual health education to a child to starts at age 6 through 7. At this age his/her mental faculty starts to develop to maturity …"* (A female, 44 years old, a school nurse from Kihesa secondary school, Iringa Municipal during IDI).

> *"… We should not wait until they are dwelt in, I mean waiting until they are in secondary schools. This education has to start at early ages preferably 8 to 10 years while they are at primary schools …"* (A female, 33 years old, a school nurse from Mlamke secondary school, Iringa Rural during IDI).

> *"… Sexual activity is done even by pupils in primary schools and some cases reported now then. Some have left school because of pregnancies. So, education needs to start there so that they can be able to get rid of sexual-related hurdles. If I can specify the age at least 7 years and above ….."* (A female, 36 years old, a school nurse from Isimila secondary school, Iringa Rural during IDI).

Furthermore, in-depth interviews with DEOs on the suitable age for one to start learning sexual health education were conducted to have their opinions on the right age for the introduction of SHE in schools. The results from the discussions yielded that the fitted age should be 8 through 10 years as reported during (IDIs):

> *"… The right age for teaching SHE should be 8 years for a child to start learning sexual health content. The onset of puberty especially for girls begins here and a good number of them initiate sex at this age. They need to be taught sexual health content relating to their ages …"* **(**A female, 45 years old, District Education Secondary Schools' Officer, Iringa Municipal during IDI)**.**

> *"… At least 9 or 10 years a child needs to be introduced to sexual health content owing to the physiological and mental growth accompanying these ages. The contents should be introduced slowly from simple to complex based on their ages …"* **(**A male, 51 years old, District Education Secondary Schools' Officer, Iringa Rural during IDI).

## 5. Discussion

### *5.1. Discussion on stakeholders' attitudes toward the provision of sexual health education*

This study tried to add knowledge on stakeholders' attitudes toward the provision of sexual health education among this special population of secondary school-going adolescents. Findings indicate that the overarching participants responsible for teaching and managing secondary school education in the study areas to mention teachers, headmasters/mistresses, healthcare workers and District secondary school officers (DEOs) were in favour of the provision of sexual health education in secondary schools in the studied areas. Participants also opined that sexual health education is very important to in-school adolescents as it provides them with the basic knowledge and skills essential to protect them from unintended pregnancies, sexually related diseases and the associated problems. The results above affirm findings [23,24] in Nigeria and India respectively that noted majority of teachers had positive attitudes toward the provision of sexual health education to secondary school adolescents. Similarly, the results are consistence with a study [25] in Iran that observed health workers to have positive attitudes on sexual health education provision in schools.

### *5.2. Discussion on perceptions on areas of sexual health education to be focused on in schools*

Participants proposed several topics that are supposed to be provided to in-school adolescents for effective transition from puberty to adulthood. Findings from teachers and headmasters/mistresses demonstrate a need for a wider range of topics to be delivered to in-school adolescents except for homosexuality as it does not conform to our culture. The proposed topics range from family life, changes brought by growth and development, creation and sustaining healthy relationships, the influence of peers, media and technology on risky sexual behaviours, the benefits of being sexually abstinent, the benefit of having one sexual partner as opposed to multiple sexual partners and communication and negotiation skills. Other suggested components include how HIV and other STDs are transmitted and

prevented and goal-setting and decision-making skills and family planning use. In the topic of family planning/contraception, teachers proposed that the condom-only method be taught to in-school adolescents correctly and consistently as it can play double advantages of protecting from pregnancies and at the same time from STIs including HIV/AIDS. They cautioned that adolescents should not be taught other methods of contraception away from condoms as other methods could cause infertility in the future. Moreover, in teaching these topics they cautioned that the selection of topics to be taught should be carefully done depending on the level of the adolescents. The above results are in line with those of [26] in Ghana who noted participants reporting the demand in learning a variety of sexual health topics at schools while cautioning that advocating the use of contraception to adolescents was not the way to go as they would cause infertility in the future.

Apart from teachers and headmasters/mistresses, healthcare workers and DEOs had similar views on the content as proposed by teachers that sexual health education to adolescents should cover several topics. However, they also added that adolescents need to be taught on a topic of how to access reliable and correct information on sexual health instead of depending on their peers who most of the time mislead them. A school is a proper channel for adolescents to have informed knowledge and skills on sexual health issues that could lead adolescents to make informed decisions on sexual relationships and improve their sexual behaviours for their health and well-being. However, they differed a bit in what teachers proposed on which methods of contraception have to be taught to adolescents as they suggest the teaching of all methods of contraception to adolescents in mind that when they grow up they will have to choose which one to use. Similar results were also observed by Refs. [24,26–28] in India, Ghana, Sweden and Asia respectively who noted teachers and healthcare workers argued that all components of comprehensive sexual health education (CSE) as suggested by international standards can be taught to adolescents in schools with the exclusion of some topics such as contraceptive methods, homosexuality, anatomy and physiology of genital organs, masturbation, sexual pleasure and orgasm.

### *5.3. Discussion on the appropriate age for a child to start learning sexual health content*

The findings of when a child should begin receiving sexual health education show that it was challenging for all participants to choose the ideal age. However, all participants reported that given the current situation where children enter puberty earlier than they used to and can learn several sexual health contents from various sources such as digital and non-digital media, delaying the teaching imposes several questions in their minds. So, all participants were in view that adolescents have to be taught these contents as early as possible, at least when they are 7 years through 10 years old. Additionally, teachers and headmasters/mistresses specifically, suggested that sexual health education should be provided from primary to secondary schools owing to its importance to adolescents' health and well-being. Teaching a child the right knowledge while still young will have to do away with their habit of learning the same from street people and peers as they can be taught improper knowledge that could not help them in their growing. On the other hand, healthcare workers and DEOs had similar views with teachers and headmasters/mistresses, however, given its importance, they insisted that this kind of education should be provided to a child as early as possible before a child initiates sexual activity. These results affirm the findings by Ref. [29] in Uganda who noted that the introduction of sexual health content to children should begin at early ages as they turn 8 years old and that [30] in Rwanda who noted participants have indicated that sexual health education should be initiated during early adolescents at 10 years old. The current results are in rebuttal to that of [31] in Europe who observed that the right age for the introduction of sexual health education to a child is 4 years. The observed difference could be due to cultural differences and the level of awareness of the importance of sexual health education on children's health and well-being.

## 6. Conclusion and recommendations

This qualitative study has described the views of teachers, healthcare workers and administrators about school-based sexual health education. Findings from this study reveal that all participants had positive attitudes toward the provision of sexual health education in secondary schools in the studied areas. Participants highlighted several topics to be covered in the sexual health education curricula except for homosexuality as it does not relate to our culture. Moreover, findings revealed that the overarching participants having trouble in fixing the right age for a child to initiate sexual health class. However, they reported that education should be provided as early as possible before a child starts sexual games, preferably at age 7 through 10 years. This is because adolescents today enter puberty and initiate sexual activity at a very young age and some of them with multiple partners older than their parents. The study concludes that to improve school-going adolescents' sexual health in the Region and other places of the same nature age-appropriate comprehensive sexuality education should be provided to teenagers to provide them with the knowledge and skills they need to make informed decisions about their sexuality and sexual health. This requires concerted efforts from the school, government and community involvement. Failure to do that would cause many adolescents in the Region to continue facing high consequences related to sexual health problems including increasing cases of unintended premarital pregnancies, unsafe abortions, increasing risk of contracting sexually transmitted infections (STIs) including HIV and AIDS, early parenthood, massive dropout from schools and untimely deaths that would shatter their self-life goals and dreams, that of the family and the nation as well.

## Consent to participate

The informed consent was obtained from participants with clearly stated research objectives. The participants were also assured of anonymity and confidentiality of information and were informed of their right to participate or refuse participation. Full respect for individuals, their social statuses, and their personalities were considered.

## Data availability

The source data included in the manuscript can be accessed from the corresponding author listed above upon reasonable request.

## CRediT authorship contribution statement

**Ahmad A. Kamangu:** Writing – original draft, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Maurice C.Y. Mbago:** Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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