FACULTY OF MEDICINE AND HEALTH SCIENCES

The evolution of adolescent sexuality education and research in Sub Sahara Africa. A systematic review of the use of terminology in primary scientific literature, published between 2000 and 2019, using text analysis.

Lisa Van Hecke
Student number: 01202533

Supervisor(s): Prof. Dr. Kristien Michielsen

A dissertation submitted to Ghent University in partial fulfilment of the requirements for the degree of Master of Medicine in Medicine

Academic year: 2019 – 2020

GHENT UNIVERSITY

Contents

Abstract

Background and Aims of this review: 25 Years after the International Conference on Population and Development (ICPD), 10 years after the first publication of the International technical guidance on sexuality education (ITGSE), and six years after the Eastern and Southern Africa (ESA) Commitment, we would like to get a better view and understanding of the terminology that exists in the CSE field in Sub-Sahara Africa (SSA) and its evolution throughout the years. By performing a text-analysis of African sexuality education trials, published between 2000 and 2019, we aimed to be provided with information about curriculum content and scientific research outcomes. As an extension, we intended to get an idea whether the shift to a more positive approach to sexuality in CSE has already taken place in SSA.

Methodology: Data for this study were collected using a multi-pronged search strategy. We identified literature through PubMed, Embase, Web of Science and other online libraries such as UNESCO and WHO. The majority of program participants (>80%) had to be adolescents aged 15 to 24 years. To explore whether a more wellbeing-oriented vision to sexuality education arose throughout the years, two analyses were performed. A *curriculum content analysis* and an *outcome analysis*. Primary scientific research from all levels of evidence were included.

Results: 27 Trials were enrolled for analysis. The curriculum content analysis showed interventions increasingly appealed to curricula that were progressively comprehensive. The trials included in this report analyzed a wide range of outcomes. Most were related to sexual health and health behaviors, but a number also measured other health and non-health outcomes. The outcome analysis showed an increased share and interest in non-health and psychological outcomes. The most commonly reported research outcomes across studies are also listed in this review.

Discussion: Until circa 2009, sexuality education interventions could mainly be categorized as 'HIV and risk prevention strategies'. Most of the content was focused around the issues of HIV infection and safe sex. Little attention was given to broader aspects of human sexuality. Around 2009, we noticed a shift taking place. Subtle changes in terminology, content and perspective were observed. We hypothesized that the appearance of the ITGSE in 2009 potentially gave rise to this shift. A broader approach to the concepts on *relationships* and *skills for health and wellbeing* was remarkable. Based on these shifts, the interventions created after 2009 are slightly more categorized as comprehensive sexuality programs instead of 'HIV and risk prevention strategies'. Even though these comprehensive programs cover broader

aspects of sexuality, the content of HIV and risk prevention has managed to remain a large constant value. Gaps in education concerning human and sexual rights, violence and pleasure were identified.

Conclusion: Altogether, our results suggest a broadened, slightly more positive view of adolescent sexuality education that continues to rise slowly but steadily. However, a risk-reductive oriented vision to CSE remains strong and predominant. This review meets the need for a rigorous analysis of sexuality education and research. It aimed to summarize all curricula content and research outcomes from the past 20 years and revealed a number of important trends, topics and gaps shaping policies, research and practice today.

1. Introduction and background

1.1 Observed shift in sexual and reproductive health education

In many western European countries, sexuality education has a long tradition going back to the 1950s. In most other parts of the world, it wasn't until the 1980s that this subject became more prominent. This increased interest has been stimulated mainly due to the HIV epidemic and its harmful consequences, especially for adolescents [1]. For understandable reasons, adolescent sexuality has long been equated with risk and danger [2], aiming at a delayed sexual debut, fewer sexual partners, and less frequent sexual contacts. In 2013, Ketting E. stated that all of the efforts being made, are still grounded to a certain extent in one of two paradigms [3]. On one hand, the "US approach", on the other hand, the "European approach".

"Abstinence-only" sexuality education programs have gained prominence in the USA after the federal government started funding such programs in 1996. This approach says that sexuality education - if needed at all - should reinforce a traditional morality on sexuality, and thus aim at preventing young people from engaging in sexual contacts before or outside marriage [4]. Worldwide, this "US risk approach" is reflected in interventions as well as in research on the topic. Tolman et al. conducted a review of literature on adolescent sexuality, published between 2000 and 2009, in which 80 % of the identified 732 studies dealt with risk, risk prevention, or identifying predictors of negative outcomes [5]. In particular, in low and middle-income regions, where negative consequences of sex are most tangible, research on ASRH is risk oriented [6].

Contrasting to this, the "European approach", published in the "Standards for Sexuality Education in Europe" [7] is based on the human rights of children and adolescents to access information and education and has at its core a positive understanding of sexuality. This "European rights-based approach" not only has a long tradition in several western European countries but is also in line with the Program of Action of the International Conference on Population and Development [8].

In 1994, The International Conference on Population and Development (ICPD) put sexual and reproductive health on the agenda for the twenty-first century. Multiple objectives were listed in their Program of Action [8], one of those saying:

> *"Youth should be actively involved in the planning, implementation and evaluation of development activities that have a direct impact on their daily lives. This is especially important with respect to information, education and communication activities and services concerning reproductive and sexual health, including the prevention of early pregnancies, sex education and the prevention of HIV/AIDS*

and other sexually transmitted diseases. In addition, there is a need for educational programmes in favour of life planning skills, healthy lifestyles and the active discouragement of substance abuse."

This colored the last two decades concerning sex education and sex research immensely. Ever since the 1994 resolutions, governments have been repeatedly called on to provide adolescents and young people with comprehensive sexuality education (CSE). Throughout, it highlights the matter of a gender and rights perspective in CSE. It presents the policy and evidence-based rationales for emphasizing gender, power, and rights within programs - including citing an analysis finding that such an approach has a greater likelihood of reducing rates of sexually transmitted infections and unintended pregnancy [9].

The field of youth sexual development has recently shifted towards the assumption that adolescent sexuality is a normal and expected aspect of human development [10]. In this broadening of research, academics do not longer solely focus on potentially risky aspects of young people's sexual behavior but also on positive outcomes associated with sexual activity in adolescence and emerging adulthood. For example, a study by Långström, conducted in 2006, observed that youth sexual health is associated with greater well-being in early and later adulthood [11].

In 2009, UNESCO published the International Technical Guidance on Sexuality Education (ITGSE) [12]. It put forward which topics and learning objectives should be covered in a 'basic minimum package' of sexuality education for children and young people aged 5–18+. A primary focus in the original ITGSE was HIV prevention:

"The primary goal of sexuality education is that children and young people become equipped with the knowledge, skills and values to make responsible choices about their sexual and social relationships in a world affected by HIV."

Since that first edition, the goals of sexuality education have changed a lot and the field of CSE has evolved rapidly. Research carried out by UNESCO supports the findings that sexuality education has positive effects, including increasing young people's knowledge and improving their attitudes related to SRH and behaviors [13]. Many experts and practitioners see CSE as an opportunity for young people to build stronger relationships, not just a way to reduce health risks. They call for a more positive vision of adolescents and young people.

Based on the latest evidence and lessons-learned from implementing CSE programs across the globe, the revised edition of the ITGSE, released in 2018 [14], indicates to promote structured learning about sex and relationships in a manner that is positive, affirming, and centered on the best interest of the young person. The renewed ITGSE hopes to help countries realize young

people's right to education, health and well-being, and to achieve an inclusive and gender equal society, instead of -roughly said- solely being the resource for the national response to the HIV pandemic.

Even though a notable shift has been observed in policy documents and despite these calls for an empowerment approach to CSE, there is little evidence that this is being implemented widely. In many countries in 2012, CSE was still not widely available in schools. These realities have a negative impact on the health and development of girls and boys but also affect nations in their efforts to reach their development goals [15]. In addition, Haberland et al. [9] found that relatively few CSE programs address empowerment or gender equality in meaningful, consistent ways and also that reliance on abstinence-only approaches, which have not been proven effective, remains strong. Literature presents that most curricula still mainly addresses reproductive physiology or emphasizes abstinence or delayed sexual initiation, with limited or inadequate attention to information about contraception or other sexual health issues [16][17].

1.2 Comprehensive sexual education

For years, youths have been deprived of certain knowledge about sex and sexuality. The content commonly found in most programs includes knowledge on HIV and AIDS, contraception, methods to prevent STIs, as well as risks and consequences of unprotected sex, pregnancy, STIs, and reproductive health [18]. The World Health Organization (WHO) [19] reported in 2017 that there are 2 million+ young people living with HIV worldwide, that a third of all new HIV infections around the world are estimated to occur among youths (aged 15–25) and that teen pregnancy rates are on the rise in many places. These worrying trends suggest that existing sexuality education programs and interventions may be inadequate and/or ineffective, partly because of the inconsistency in the related initiatives.

The definitions of CSE suggested by various agencies slightly differ, yet they share a common and essential aspect: a grounding in human rights and empowerment, and particularly young people's rights to education about the bodies, relationships and sexuality. Noticeably these definitions take a holistic view of sexuality and sexual behavior, going beyond the traditional focus on education about reproduction, risks and disease.

The ITGSE 2018 [14] provides the following definition of CSE:

> *"Comprehensive sexuality education (CSE) is a curriculum-based process of teaching and learning about the cognitive, emotional, physical and social aspects of sexuality. It aims to equip children and young people with knowledge, skills, attitudes and values that will empower them to: realize their health, well-being and dignity; develop respectful social and sexual relationships; consider how their choices affect their own well-being and that of others; and, understand and ensure the protection of their rights throughout their lives."*

Currently, the latest ITGSE [14] offers a set of eight main key concepts, that have proven to be effective, to guide development of locally-adapted curricula:

1. *Relationships*
2. *Values, Rights, Culture and Sexuality*
3. *Understanding Gender*
4. *Violence and Staying Safe*
5. *Skills for Health and Well-being*
6. *The Human Body and Development*
7. *Sexuality and Sexual Behavior*
8. *Sexual and Reproductive Health*

Montgomery et al. for UNESCO [20] said that one of the main challenges in defining sexuality education, and particularly the elements that comprise comprehensive programming, may stem from the different terminologies used across national policies and curricula. Many different names are used, reflecting an emphasis on various aspects of CSE by different countries. Additionally, something very substantial to stress is that omission of key topics, because of being culturally sensitive, will reduce the effectiveness of CSE.

> *The Guidance highlights the importance of addressing the reality and impact of sexuality on young people's lives, including some aspects that may be sensitive or difficult to discuss in certain communities. Using scientific evidence and rooting the content in gender equality and human rights standards and frameworks helps address sensitive issues.*

1.3 CSE status in Sub Sahara Africa

In the segment above, we stated the situation in its global context. Alongside global interests, UNESCO has a special eye for Africa, stating that HIV and AIDS continues to have a significant impact in Sub Saharan Africa (SSA). In Africa, adolescent girls and young women between the ages of 15 and 24 still face a heightened vulnerability to HIV. Gender inequality continues to limit the potential and the achievement of girls in this region, through lower school completion rates (e.g. 28% of girls enroll in secondary school compared to 32% of boys), child marriage and cultural norms which define the roles of girls and boys. Several advances have been made in Sub Sahara Africa but there are still significant challenges [21].

The focus of curricula is without any doubt dependent on the context in which the program is operating. In 2005, Visser et. al [22] found that in South Africa, CSE programs still largely focus on HIV and AIDS awareness, even though the national policy calls for promoting life skills needed for young people. Multiple assessments [23] of the content and delivery of CSE programs found that few national sexuality education programs in sub-Saharan Africa meet what are considered global standards. The content was age appropriate and addressed the topic of communication skills reasonably well, but the main gaps included information about male/female condoms, contraception and other SRH topics such as reproduction, STIs, abortion, where to access services, male circumcision, and puberty. Attention to gender tended to be weakest or even

contradictory [9].

In 2013, the ministers of Education and Health from 20 countries in Eastern and Southern Africa (ESA) [24] gathered in Cape Town to work towards a vision for young Africans, where they made commitments to ensure quality comprehensive sexuality education and youth-friendly sexual and reproductive health services in the ESA region (the “ESA Commitment”). For example, they commit themselves to strengthening HIV prevention, treatment, care and support, and sexual and reproductive health and rights (SRHR) efforts in Eastern and Southern Africa by ensuring access to good quality, comprehensive, life skills-based HIV and sexuality education (CSE) and youth-friendly sexual and reproductive health services for all adolescents and young people, recognizing each country’s socio-cultural context. They also acknowledged that greater benefits are possible when sexuality education includes a strong focus on rights and gender, therefore they also committed to strengthen gender equality and rights within education and health services.

Several foreseeable challenges still come to the surface when setting up youth friendly centers and adolescent sexual education in SSA. Health professional in two hospitals in Ghana were interviewed to assess the opinions of service providers on tailoring sexual and reproductive health services. They mentioned the unwelcoming attitudes of service providers as a big challenge because of their limited appreciation of adolescents' needs [25]. Societal disapproval of discussing sex and related issues among adolescents still impacts the quality of the services and education.

In 2015, researchers from the Guttmacher Institute [26] surveyed students in Kenya about the content of their sex education, however, they reported a fear-based and prescriptive tone in the messages they received. Three-fourths reported that their teachers very strongly emphasized that they should not have sex before marriage and that having sex is dangerous for young people. Fewer than half of all students reported that the message to avoid having sex, but to use condoms if they do, was very strongly conveyed. The article concluded that the current practice in Kenya largely ignores skills-based learning, and the attitudes and values nurtured by the program do not facilitate a positive view of sexuality and are predominantly conservative. Indeed, nine in ten teachers reported teaching about abstinence, 71% of whom taught that it was the best or only method to prevent STIs and pregnancy. Similar observations were found in rural schools in Uganda [27]. Findings have further shown that students received abstinence-only information as a method to protect themselves against STIs/HIV and to continue attending school. More research concerning the perception of content, delivered after the 2013 ESA Commitment, needs to be carried out.

1.4 Aims of this review

Little evidence is available from the region on efforts between the education and health sectors for joint programming, monitoring and evaluation of SRH education (and services) for adolescents and young people [28]. In the intend to reduce the waste of public spending on programs and components that do not contribute much to improving wellbeing, CSE programs must be ensured to be as efficient as possible [29]. There is therefore a need to understand the impact of sexuality educational programs over time.

We now already learned that, despite calls from national policies, educational programs do not necessarily entail the content that adolescents really need for comprehensive sexuality education. 25 Years after the International Conference on Population and Development (ICPD), 10 years after the first publication of the ITGSE, and six years after the ESA Commitment, we would like to get a better view and understanding of the terminology that exists in the CSE field and its evolution throughout the years in SSA. By performing a text-analysis of African sexuality education studies, published between 2000 and 2019, we aim to be provided with information about the focus of sexuality education in educational curricula as well as in scientific research articles. As an extension, we intent to get an idea whether the shift to a more positive approach to sexuality in CSE has already taken place in SSA.

This review does not aim to make judgement about the design, quality or implementation of the studies included. It will be merely an inquiry about the terminology and its focus throughout time.

2. Methodology

Methods for screening, inclusion, and analysis for this review were specified in advance. We used a literature review to identify relevant articles and text analytical methods to analyze the articles.

2.1 Search methods for identification of trials and systematic reviews

Data for this study were collected using a multi-pronged search strategy. We identified literature through academic databases (PubMed, Embase, Web of Science) using an extensive search strategy. Search strategies are detailed in Appendix B. Furthermore other primary, secondary and grey literature was found searching the online libraries and publications of UNESCO, UNAIDS, USAID, WHO, UNFPA and the websites of IPPF and others.

We screened titles and abstracts for which a negative response to any item resulted in exclusion; all reasons for inclusion/exclusion were recorded. The criteria for inclusion are mentioned below. We obtained full-text documents for all titles and abstracts that passed the initial screen. Review

of full-text records resulted in exclusion of additional studies for failure to meet these predetermined criteria. We checked the reference lists of all included studies for additional relevant studies. (Systematic) reviews retrieved through this search were not as such included in the list of articles to review. Only primary literature was included for text-analysis. Therefore, all the references of every review were scanned. Same for secondary literature found on the websites of UN agencies, some non-governmental organizations and international development partners.

2.2 Criteria for inclusion of studies

- Only include programs that took place in Sub Sahara Africa;
- Only include programs that were published between 2000 and 2019;
- Only include primary research articles;
- The majority of program participants (>80%) have to be adolescents aged 15 to 24 years;
- Studies included in this review had to refer to in- or out- of- school-, group- and curriculum-based STI, HIV, sexuality, reproductive health or relationship education interventions (which may be identified using different names, e.g., life-skills or 'family life' programs, or similar); focused primarily on influencing sexual behavior, knowledge and attitudes;
- The content of the program needs to be covered in the article; either by exact mentioning of the content, or else if researchers documented the effects through outcome or impact evaluations;
- We restrict to English literature;
- All kind of studies/study designs/interventions can be included; there is no restriction to randomized clinical trials.

2.3 AntConc Text Analysis Software

The articles were analyzed using the AntConc Text Analysis Software. All articles were therefore converted to an UTF-8 encode form. This enabled us to upload every article in the program. In this way we were able to quickly scan texts for terminology and use other analytical options when necessary.

2.4 Analyses

To explore whether a more wellbeing-oriented vision to sexuality education arose throughout the years, two analyses were performed. A *curriculum content analysis* and an *outcome analysis*.

2.4.1 Curriculum Content Analysis

The ITGSE [14] put forward eight key concepts which are equally important, mutually reinforcing and intended to be taught alongside one another:

1. *Relationships*
2. *Values, Rights, Culture and Sexuality*
5. *Skills for Health and Well-being*
6. *The Human Body and Development*

3. Understanding Gender
4. Violence and Staying Safe
7. Sexuality and Sexual Behavior
8. Sexual and Reproductive Health

The latter three were considered to be more *physical health-oriented* and/or *risk-oriented* constructs, the former five as being more *social, mental or psychological oriented or wellbeing-oriented*. Subdivision into these two orientations (wellbeing vs physical health/risk) can be defended by the content of the concepts, however is not extremely strict or rigid. It must be noted that the assignment of terminology (here or later on in this review) into one of these two constructs is also influenced by the reviewer's connotation of the words, which is culturally determined.

All articles were scanned for reported content of the implemented curricula. Table 1 shows all cited topics per curriculum. All these topics were then assigned to one of the eight ITGSE concepts. Subsequently, each curriculum was given a wellbeing score (Wscore) and a risk-reductive/physical health score (Rscore). For each wellbeing oriented concept that was fully covered (meaning addressing al associated topics), the Wscore of a curriculum went up with one point (also quarter points and half points were assigned). Not covering wellbeing-oriented concepts was also considered risky and raised the Rscore with one point for each neglected concept. For each physical health-oriented or risk-oriented concept that was fully covered, the Rscore of a curriculum also went up with one point (also quarter points and half points were assigned). In this way, an idea could be displayed about a curriculum's tendency to be very physical health/risk-reductive oriented and second, how much of a curriculum's content addressed wellbeing.

2.4.2 Analysis of Outcomes

All articles were manually scanned for measured outcomes and listed in Table1. The trials included in this report analyzed a wide range of outcomes. Most were related to sexual health and health behaviors, but a number also measured other health and non-health outcomes, as shown in Table 1. Hence, we chose to create three categories into which we would subdivide the outcomes for analysis: *sexual health outcomes*, *health-related knowledge and attitude outcomes*, and *non-health and psychological health outcomes*. For every study, after categorizing these outcomes into one of three categories, each category was assigned a percentage (%) related to their proportion compared to all measured outcomes (100%). For example: If an article covers four different outcomes in total, two health related outcomes and two non-health outcomes; both categories get assigned 50%. This information gives insights into the focus of a study; whether one outcome category dominates the focus, or whether the focus is divided into two or three categories and about the associated statistical distribution.

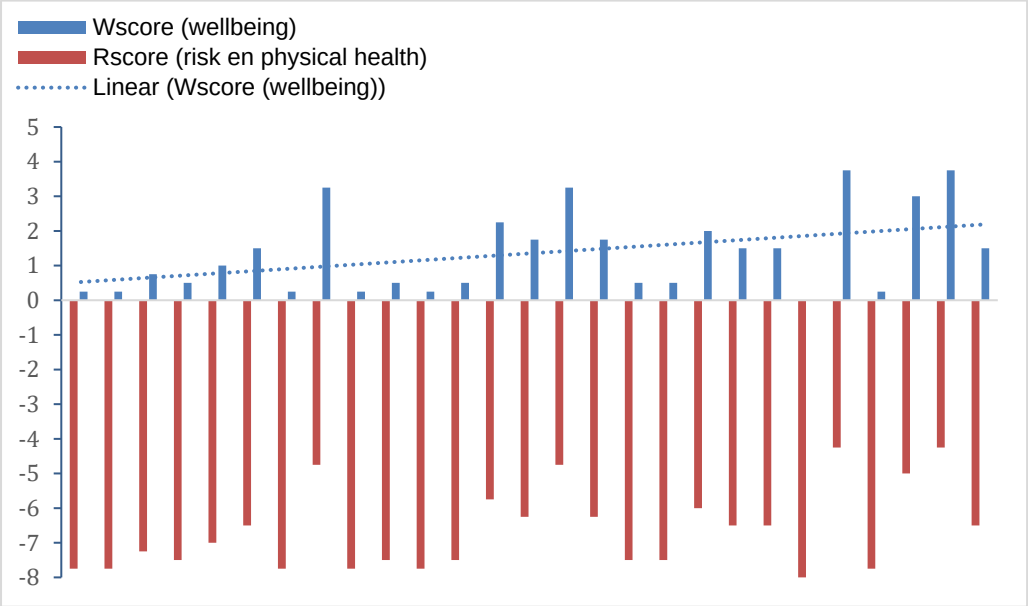
3. Results

The initial search for relevant articles of sexuality education programs in the databases identified 554 records. After removing duplicates, 443 records remained. Based on the titles and abstracts, an additional 381 records were excluded, and full-text articles were sought for the remaining 62 records. Thirty-three of these were excluded, mainly because they were not aimed primarily at adolescents aged 15+. Twenty-nine studies remained, 22 records were primary scientific studies and 7 records were review articles. After searching the reference lists from the reviews, 70 extra records were retained for screening for inclusion/exclusion criteria. Eleven studies remained. (A possible explanation why these studies were not found during the initial search can be found in the section *limitations* of this review.) One additional article was found by scrolling through gray literature. Subsequently, thirty-four studies remained for final analysis. An additional seven articles were excluded because they described the same program as another article or because the full text could not be retrieved. Table 1 (Appendix A) summarizes all 27 trials. (Appendix C, PRISMA flow chart, for detailed search results for trials.)

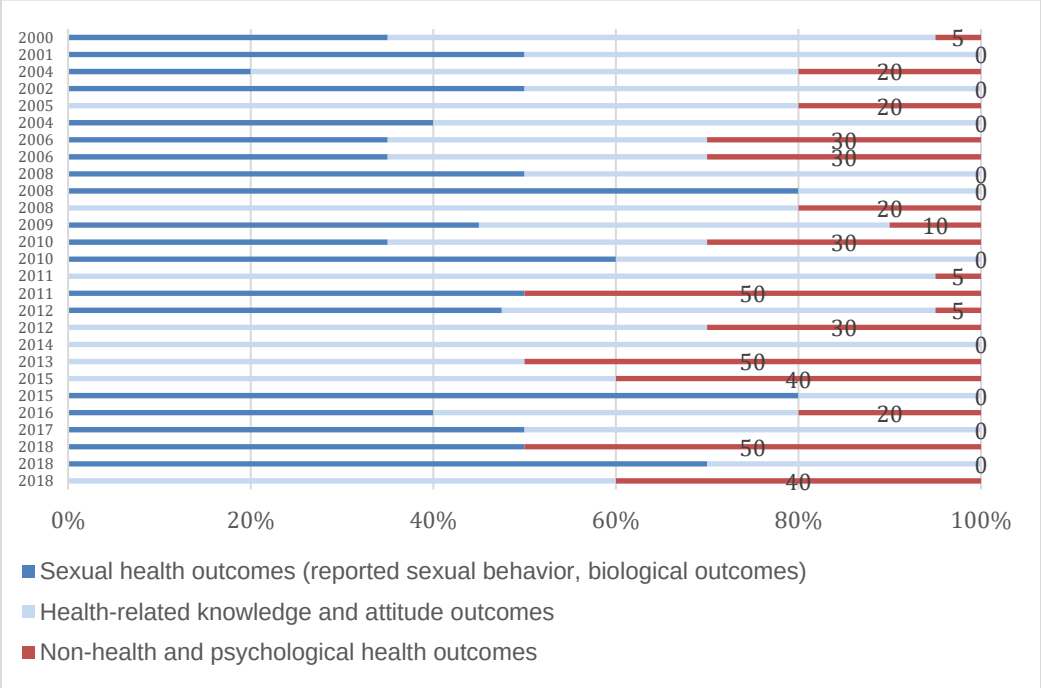
3.1 Curriculum Content Analysis

The technical understanding of the analysis can be found in the section *Methodology*. Taking into account the definition of CSE (see introduction), the interpretation can be made that the higher the Wscore, the more a curriculum can be seen as comprehensive. Risk oriented topics are also part of comprehensive curricula. So, in theory, all curricula are comprehensive to a certain extent. Only here in this review, the emphasis is more on the fact that the more wellbeing-oriented topics are present in a curriculum, the more that curriculum can be considered as "full" comprehensive.

Graph 1 shows the results of the curriculum content analysis. For better graphic display, Rscore values were made negative. The main idea to be concluded from this analysis, is that over time, interventions increasingly appealed to curricula that were progressively comprehensive. The trend line (dashed line) in this graph supports this conclusion. A trend line attempts to reflect a long-term movement, called a trend. This model can then be used to describe the behavior of the observed data, without explaining it. It is useful to determine if measurements exhibit an increasing or decreasing trend which is statistically distinguished from random behavior. The trend line fitting the Wscores suggests a rising trend.



Graph 1 Curriculum Content analysis. Each curriculum was given a wellbeing score (Wscore) and a risk-reductive/physical health score (Rscore). The linear trend line (dashed line) estimates the long-term movement of the Wscores.



Graph 2 Distribution of Outcomes

3.2 Analysis of Outcomes: their evolution and perceived connotation

All articles were scanned for measured outcomes and these are listed in Table1. The technical understanding of the analysis can be found in the section *Methodology*. The distribution of all these outcomes throughout time is displayed in graph 2. This information gives insights into the research focus of a study.

For each outcome category, we mentioned the average (%) share of the category between 2000 and 2010 and after 2010, as well as the lowest and highest value (%) of observed share.

The choice for the division of our data at the year 2010 was largely arbitrary. To get an idea of the evolution of outcomes, we decided to make a comparison between roughly the first and the second half of our time span. In addition, we also suspected potential changes in scientific research after the release of the ITGSE [12] by UNESCO in 2009. For these reasons, we chose 2010 as the cut-off year for the comparison.

3.2.1 Sexual health outcomes (reported sexual behavior and biological outcomes)

Reported sexual health outcomes (in short: health outcomes) were found in 19 out of 27 articles and all listed in Table1. The five most commonly reported sexual health outcomes across studies were:

1. ever had sex
2. age of sexual debut
3. condom use at last sex
4. condom use frequency in general
5. number of sexual partners

The following may differ slightly depending on the aims of a study, but in general the interventions aimed at either increasing age of sexual debut, condom use at last sex and condom use frequency or at decreasing the number of sexual partners. The overarching goal linked to health outcomes is to reduce potentially risky sexual behavior through sexuality education, and hence reduce the risk for poor health outcomes such as STIs, HIV and unwanted pregnancy. This associated goal gives these health outcomes the connotation (emotional value) of being *risk-reductive oriented*. Graph Y shows that health outcomes remained responsible for a significant proportion of all researched outcomes in the selected articles, ranging from 20% to 80% with an average of 36% between 2000 and 2010 and 33% after 2010.

3.2.2 Health-related knowledge and attitude outcomes

Health-related knowledge and attitude outcomes (in short: knowledge and attitudinal outcomes) were found in 25 out of 27 articles and are all listed in Table1. The five most commonly reported health-related knowledge and attitude outcomes across studies were:

1. HIV/sti/aids knowledge (esp. transmission and prevention)
2. knowledge on condom use
3. attitudes to condom use
4. self-efficacy related to condom use
5. knowledge on pregnancy prevention

These outcomes are primarily aimed at preserving physical health and/or reducing risky sexual behavior. Similar to health outcomes, knowledge and attitudinal outcomes contained a significant proportion of all researched outcomes in an article. This proportion ranged from 20% to 100% with an average of 50% between 2000 and 2010 and 48% after 2010. Even though the curricula content has become slightly more comprehensive and well-balanced (graph1), the predominance of these outcomes throughout time gives the scientific studies a remarkable *risk-oriented connotation.*

3.2.3 Non-health and psychological health outcomes

In this review, a special interest goes out to the appearance in time and evolution of the non-health and psychological health outcomes, for example: communication skills, knowledge about gender,... Non-health outcomes were found in 17 out of 27 articles. When compared to the two previous groups of outcomes, they represented a significant smaller proportion. Ranging from 5% to 50% within an article, with an average of 12% between 2000 and 2010 and 22% after 2010. However, Graph Y shows a continuing rising trend in the share of non-health outcomes.

Around 2013, we noticed a shift in measured outcomes. Up until 2013, particular interest went out to the following outcomes:

- *Perceived peer and social norms and perceived normative beliefs*: mostly concerning safe sex behavior such as condom use and delaying sex, and *stigma* about HIV/aids and people with HIV/aids;
- *Communication skills*: eg. talking about sti/HIV, talking comfortably about sex, communicating to avoid risky behavior and sex negotiation;
- Knowledge about *cultural power dynamics, gender sensitivity, and attitudes about gender and towards the other gender*;

- *(Sexual) decision making, goal and future orientation;*
- Outcomes that only came up ones: *perceived social support, concept of healthy sexuality, perceptions of staff, knowledge about abortion law and rights within marriage.*

Even though these outcomes do not directly measure physical health status or risky sexual behavior, it still feels as if the focus is implicitly on evaluating aspects related to reducing the likelihood of getting HIV/other STIs or of unintended pregnancy.

After 2013, except for perceived social norms, still mostly concerning condom use and sexual delay, the outcomes mentioned above were barely studied and other outcomes made their appearance:

- Knowledge about *gender-based violence;* experienced sexual and gender based violence;
- *Relationships and sex*: knowledge, attitudes, self-efficacy, risk perception;
- *Sexual rights*: knowledge, attitude, self-efficacy, risk perception;
- *Intimate partner violence* (IPV): IPV victimization/ IPV perpetration: knowledge and experiences;
- *Setting personal limits*: knowledge, attitude, self-efficacy, risk perception;
- *(Economic) empowerment*

The connotation (emotional value) of these non-health outcomes is sensed as aiming less on reducing physical risks and reflects a broader vision of sexuality. Therefore, we categorized the latter outcomes as more *social, mental or psychological oriented* or *wellbeing-oriented*.

4. Discussion

The analyses we have carried out, have provided us with valuable insights on the evolution of sexuality education and research in SSA. We were specifically interested in reported curriculum content and research outcomes in primary scientific research. On the subject of curriculum content, the main idea to be concluded is that, over time, interventions increasingly appealed to curricula that were progressively comprehensive. Second, to this day, a great amount of research focus goes out to the outcomes of which the connotation is perceived as physical health/risk reductive-oriented, nonetheless however a continuing trend in the increased share and interest of non-health outcomes is noticed as well. These findings combined suggest a more balanced view of sexuality that continues to rise slowly but steadily. In the following section, we provide an

overview of the specific components that have been focused on and reflect on their relevance. Subsequent, several identified gaps are elaborated.

4.1 Curricula content: focus and shifts after 2009

Until circa 2009, sexuality education interventions could mainly be categorized as 'HIV and risk prevention strategies'. Most of the content was focused around the issues of HIV infection and safe sex. In addition to providing information, the majority of these strategies also already payed attention to developing skills and values, what made them slightly more comprehensive. However, these skills and values primarily aimed at reducing adolescent's risky behavior. Examples of this are the following: communication skills to avoid sex, negotiate sex, feeling confident about condom use, self-efficacy to practice safe sex, the ability to resist negative peer influences, being able to discuss all previous topics. Little attention was given to broader aspects of human sexuality.

Around 2009, we noticed a shift taking place. Subtle changes in terminology, content and perspective were observed and elaborated below. We hypothesized that the appearance of the ITGSE [12] in 2009 potentially gave rise to this shift.

HIV infection and teenage pregnancy continued to have a significant impact in sub-Saharan Africa. It is therefore no surprise that all curricula continued addressing HIV knowledge and prevention extensively. Pregnancy prevention strategies were discussed in twenty out of the twenty-seven curricula in total and in all but one after 2009. To prevent pregnancy, it is essential for young people who plan to have, or are already having sexual intercourse, to receive information about the full range of modern contraception. These needs are increasingly met over time. Most attention goes out to birth control pills and condom efficiency. However, a lot needs to be done in this area. Remarkably, curricula never mentioned abstinence anymore as a recommended strategy and it wasn't any longer a separate topic. This strongly suggests that most curriculum developers have distanced themselves from the abstinence only vision, which is very encouraging since abstinence-only approaches have been found to be ineffective [30][31].

Second, a broader approach to the concepts on *relationships* is observed. Instead of focusing almost solely on sexual relationships, curriculum makers now more often report on content concerning healthy and intimate relationships, family life and positive parenting. Indeed, in addition to the physical aspect of relationships, also other aspects, such as intimacy and attachment, need to be addressed. In doing so, the knowledge and skills taught within this concept can help children and young people form respectful and healthy relationships with family members, peers, friends and romantic or sexual partners. Excluding these components from

sexuality education renders young people vulnerable and limits their agency in their own sexual practices and relationships [14]. The broadening of this concept is therefore a significant, positive change.

Another shift, concerning the concept on *skills for health and wellbeing*, arose. The focus is shifted from risk-oriented communication and decision-making skills to skills that empower young people in all their aspects of health. Examples of the skills that emerged are the following: Communication skills about the broader concept of sex and sexuality; How to find youth-friendly services and support, especially for teenage parents and psychological support; Orientation to life; Coping and adaptation with stigma and discrimination. These skills enables learners to take action and to make rational decisions about their sexual behavior. We believe enhancing these skills will make a crucial contribution to progress across all ESA Commitments, especially to the empowering of girls and young women.

Approximately one in two curricula addressed the concept of *gender*. Topics such as understanding gender, gender (in)equality, gender roles and power norms were mentioned repeatedly. Gender-focused programs, in which students are supported to question social and cultural norms around gender and to develop gender equitable attitudes, are substantially more effective than 'gender-blind' programs at achieving health outcomes [9]. We had not estimated the focus on gender so highly. A continuous rising attention to this can therefore only be welcomed. Content concerning gender-based violence was for the first time mentioned as a separate topic in 2015. The appearance of this new topic is probably due to a group of experts mentioning gender-based violence as a research priority for adolescent sexual and reproductive health in low- and middle-income countries [32].

Based on these shifts, the interventions created after 2009 are slightly more categorized as comprehensive sexuality programs instead of HIV and risk prevention strategies. Even though these comprehensive programs cover broader aspects of sexuality, the content of HIV and risk prevention has managed to remain a large constant value.

4.2 Content and research gaps after 2009

Additional to the shifts observed around 2009, a few important content and research gaps were identified. With these shifts in mind, we have chosen to focus on gaps that could be found after 2009.

Of all curricula created after 2009, only three out of nine addressed the topics *human and sexual rights* (e.g. female genital mutilation, abortion and sexual violence/abuse). It has been pushed forward that a strong focus on rights entails greater benefits [33]. By withholding this information,

young people could be deprived of their ability to understand and act upon their rights. Even though we support the rights-based education, we are aware that, depending on the context, some topics may be culturally sensitive and even contraindicated to mention. For instance: In a context where abortion is prohibited, it can be dangerous for the students to be educated about this topic. Curriculum developers and teachers must therefore be well informed about regional contexts. Using scientific evidence and rooting the content in gender equality and human rights standards and frameworks could help address sensitive issues [14].

Same observation was made concerning the concept *violence and staying safe.* Education about sexual violence and intimate partner violence: types, warning signs, own values, skills and how to seek help; was only found in two out of nine curricula created after 2009. It can be argued that these topics also are more culturally sensitive and therefore have been addressed less.

Throughout this whole review, the topic *pleasure* is remarkably absent, in both reported content and research outcomes. Nonetheless, there are increasing indications [34] -from developing as well as developed countries- that health outcomes may benefit from a greater acceptance of positive sexual experiences; e.g. a sex-positive approach can increase condom use and safer sex [35]. In most cultures in SSA it may be unacceptable to suggest that teaching young people how to achieve sexual pleasure is valuable. In particular, the role of pleasure in sexual development and relations is normally not acknowledged. It is reasonable to think that the dominance of certain content and research outcomes serves to divert attention from these aspects of courses that are more culturally sensitive.

Some other noticeable gaps: long term commitments and parenting, safe use of information and communication technologies, media literacy, and body-image. It is understandable, in light of SSA's larger challenges, that these topics seem less urgent or important.

Our review states that curricula are progressively comprehensive. They increasingly contain wellbeing-oriented topics, but few curricula fully cover these concepts. Furthermore, the content of the different curricula in this review was often very variable. This complicates our understanding of CSE. Other researchers also came across this finding [36].

4.3 Limitations and strengths of this review

We identified several limitation in our study. Firstly, the review is based on the content reported in the articles. A rigorous review by Lopez et al.[16] found that trials not always adequately report the content of interventions. We realize this is possible with some studies in this review and that this can have an effect on our results.

Secondly, curricula can have become more comprehensive over time, this does not ensure that all components are actually delivered in practice or even that content is delivered as intended. Research concerning implementation of curricula is therefore recommended.

Thirdly, the division of interventions into risk-oriented or wellbeing-oriented is purely based on reported content and outcomes. Other factors, especially implementation factors [37] can negatively affect interventions and therefore make them more risky. Questionable implementation factors may include, for instance: reducing the number or length of sessions or how long participants are involved, eliminating key messages or skills learned or using staff or volunteers who are not adequately trained or qualified. These factors are not included in this review's analysis, nevertheless their informational value should not be neglected.

Fourthly, although we find our search strategy to be thorough, we acknowledge the possibility that we could have missed relevant articles. Terminology concerning sexuality and sexuality educational interventions is extensive. Synonyms of terminology may have been missed, are therefore not included in the strategy and this may have led to the loss of relevant literature. This may explain why we have been able to retain eleven additional articles by searching reviews.

Last, as the time to conduct this review was limited, it is possible that some trials or systematic reviews were not included, though, considering the number of search engines searched, we estimate the impact on our results to be not very substantial.

Among the strengths of this review is its primary reliance on evidence ranging from systematic reviews and RCTs to all other research study designs that have assessed various aspects of CSE programs. Therefore the interventions encompass content and outcomes from across the hierarchy of evidence. The large number of non-randomized, non-controlled studies, and qualitative studies, while not able to provide causal evidence, are nonetheless pertinent data for this review and helped set the stage for future research and development of CSE programs. However, the fact that the evidence threshold is somewhat variable throughout could also be seen as a limitation.

Second, throughout this review, we have repeatedly taken into account the guidelines of the ITGSE [14] by UNESCO to support our analyses. In view of its high-quality evidence generated since 2008, we considered the ITGSE to be a sound and reliable resource for developing and promoting CSE. We considered this strengthened the quality of our research.

5. Conclusions and recommendations

We wanted to explore whether a more wellbeing-oriented vision to sexuality education arose throughout the years. To this end, two analyses were performed, one curriculum content analysis and an outcome analysis. The curriculum content analysis showed interventions increasingly appealed to curricula that were progressively comprehensive. We reasoned that the use of increasingly comprehensive curricula is a stepping stone to a more wellbeing-oriented vision. The outcome analysis showed an increased share and interest in non-health and psychological outcomes. We reasoned these outcomes to be wellbeing-oriented. Altogether, our results suggest a broadened, slightly more positive view of adolescent sexuality education that continues to rise slowly but steadily. However, a risk-reductive oriented vision remains strong and predominant.

This review meets the need for a rigorous analysis of sexuality education and research. It aimed to summarize all curricula content and research outcomes from the past 20 years and revealed a number of important trends, topics and gaps shaping policies, research and practice today. This is immediately relevant for government education ministers and non-governmental organizations (NGOs). It is also useful for anyone involved in the design, delivery and evaluation of sexuality education programs including stakeholders working on quality education, sexual and reproductive health (SRH), adolescent health and/or gender equality, among other issues.

Based on this review's findings, we have formulated a few recommendations to support and empower future sexuality education, research and content creation:

- In 2013 [24], the ESA's ministers committed to strengthen rights within education and health services. Since very few curricula and research outcomes addressed human and sexual rights, our review supports the idea that rights within sexuality education should receive more attention.
- We recommend to feature the role of pleasure and an acceptance of positive sexuality more prominently. This is in line with an UNESCO recommendation [38] that recognizes pleasure as an essential component of sexuality education.
- We also recommend to start including the following topics in order to keep on evolving towards a full ranged, comprehensive sexuality education: Long term commitments and parenting; Violence and staying safe; Safe use of information and communication technologies; Media literacy; and Body-image.

When incorporating recommendations, one should keep in mind the following: Based on needs and country or regionally-specific characteristics, such as social and cultural norms and

epidemiological context, interventions -based on ready-made curricula or guidelines, such as the learning objectives by ITGSE- should be adjusted to be more applicable for that context [14]. However, as acknowledged in development psychology and by most experts, we believe that children and young people want and need sexuality and sexual health information as early and comprehensively as possible.

6. References

[1] UNICEF: Children and Aids. 5th stocktaking report 2010. Accessed 12 December 2019, http://www.unicef.org/publications/files/Children_and_AIDS_Fifth_Stocktaking_Report_2010_EN.pdf

[2] Kett JF. Teaching sex: the shaping of adolescence in the 20th century. [Review of: Moran, J.P. Teaching sex: the shaping of adolescence in the 20th century. Cambridge, Mass.: Harvard U. Pr., 2000]. J Soc Hist. 2002;35(3):708-10.

[3] Ketting E, Winkelmann C. New approaches to sexuality education and underlying paradigms. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz. 2013, 56(2):250-5.

[4] Personal Responsibility & Work Opportunity Reconciliation Act of 1996. Title V, § 510(b)(2) (A-H)of the Social Security Act. Accessed 12 December 2019,ftp://ftp.hrsa.gov/mchb/abstinence/statefs.pdf.

[5] Tolman DL, McClelland SI. Normative Sexuality Development in Adolescence: A Decade in Review, 2000–2009. J Res Adolesc. 2011, 21(1):242–55.

[6] Fonner VA, Armstrong KS, Kennedy CE. School based sex education and HIV prevention in low- and middle-income countries: a systematic review and meta-analysis. PLoS ONE. 2014, 9(3):e89692. Accessed 12 December 2019. Available from: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0089692.

[7] WHO Regional Office for Europe and BZgA: Standards for Sexuality Education in Europe. A framework for policy makers, educational and health authorities and specialists. Accessed 12 December 2019, https://www.bzga-whocc.de/fileadmin/user_upload/WHO_BZgA_Standards_English.pdf

[8] Program of Action of the ICPD. Accessed 12december2019, https://www.unfpa.org/sites/default/files/event-pdf/PoA_en.pdf.

[9] Haberland N, Rogow D. Sexuality education: emerging trends in evidence and practice. J Adolesc Health. 2015, 56(1 Suppl):S15-21.

[10] Boislard MA, van de Bongardt D, Blais M. Sexuality (and Lack Thereof) in Adolescence and Early Adulthood: A Review of the Literature. Behav Sci (Basel). 2016, 17;6(1). pii: E8.

[11] Långström N, Hanson RK. High rates of sexual behavior in the general population: correlates and predictors. Arch Sex Behav. 2006 Feb, 35(1):37-52.

[12] International technical guidelines by UNESCO. 2009. Accessed 12december2019, https://unesdoc.unesco.org/ark:/48223/pf0000183281.

[13] UNESCO 2016b: Disaster Risk Reduction. Accessed 12december2019, http://www.unesco.org/new/en/natural-sciences/special-themes/disaster-risk-reduction/ 2016b

[14] International technical guidelines by UNESCO. 2018. Accessed 12december2019, https://reliefweb.int/sites/reliefweb.int/files/resources/ITGSE_en.pdf.

[15] Cappa C, Wardlaw T, Langevin-Falcon C. Progress for children: a report card on adolescents. Comment 2012: 379(9834): 2323-2325.

[16] Lopez LM, Bernholc A, Chen M. School-based interventions for improving contraceptive use in adolescents. Cochrane Database Syst Rev. 2016, (6):CD012249.

[17] UNFPA Annual Report 2012. Accessed 12december2019, https://www.unfpa.org/publications/unfpa-annual-report-2012#

[18] Denford S, Abraham C, Campbell R. A comprehensive review of reviews of school-based interventions to improve sexual-health. Health Psychol Rev. 2017, 11(1):33-52.

[19] World Health Organization Sexually Transmitted Infections (STIs) Fact Sheet. Accessed on 13december2019. (Available online: https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)

[20] UNESCO, 2015c, p13: Review of the Evidence on Sexuality Education. Report to inform the update of the UNESCO International Technical Guidance on Sexuality Education. Developed by Paul Montgomery and Wendy Knerr. Accessed 12december2019, https://www.gcedclearinghouse.org/sites/default/files/resources/180165eng.pdf

[21] UNAIDS 2017. Accessed on 12december2019, https://www.unaids.org/sites/default/files/media_asset/20170720_Data_book_2017_en.pdf

[22] Visser, MJ. Life skills training as HIV/AIDS preventive strategy in secondary schools: evaluation of a large-scale implementation process. Sahara J 2005, 2(1): 203-216.

[23] Herat J, Hospital X, Kalha U. Missing the Target: Using Standardised Assessment Tools to Identify Gaps and Strengths in Sexuality Education Programmes in West and Central Africa. Paper for 20th International AIDS Conference, Melbourne, Australia, 20–25 July, 2014.

[24] ESA Commument Report 2013. Accessed 12december2019, https://www.youngpeopletoday.org/wp-content/uploads/2018/06/2013-ESA-Commitment-Report_Feb.pdf

[25] Boamah-Kaali EA, Kaali S, Manu G. Opinions of Health Professionals on Tailoring Reproductive Health Services to the Needs of Adolescents. Int J Reprod Med. 2018, 2018:1972941.

[26] Archibald T1. "They just know": the epistemological politics of "evidence-based" non-formal education. Eval Program Plann. 2015, 48:137-48.
[27] Achora S, Thupayagale-Tshweneagae G, Akpor OA. Perceptions of adolescents and teachers on school-based sexuality education in rural primary schools in Uganda. Sex Reprod Healthc. 2018 Oct;17:12-18.
[28] UNESCO 2013 Young People today: Why adolescents and young people need comprehensive sexuality education and sexual and reproductive health services in Eastern and Southern Africa. Accessed12december2019.https://www.youngpeopletoday.org/wpcontent/uploads/2014/08/SummaryReport-English.pdf
[29] Durlak, J. (2013). The importance of quality implementation for research, practice and policy Washington, D.C.: Office of the Assistant Secretary for Planning and Evaluation (ASPE). Retrieved from https://aspe.hhs.gov/basic- report/importance-quality-implementation-research-practice-and-policy.
[30] Kohler PK, Manhart LE, Lafferty WE. Abstinence-only and comprehensive sex education and the initiation of sexual activity and teen pregnancy. Journal of Adolescent Health 2008, 42(4):344-351.
[31] Raymond M, Bogdanovich L, Brahmi D. State refusal of federal funding for abstinence-only programs. Sex Res Soc Policy 2008, 5: 44.
[32] Hindin MJ, Christiansen CS, Ferguson BJ. Setting research priorities for adolescent sexual and reproductive health in low- and middle-income countries. Bull World Health Organ. 2013, 91(1):10-8.
[33] Population Council (2009): It's All One Curriculum, New York. Accessed 12dec2019. https://www.popcouncil.org/research/its-all-one-curriculum-guidelines-and-activities-for-a-unified-approach-to-
[34] Ingham R. 'We didn't cover that at school': education *against* pleasure or education *for* pleasure? Sex Education 2005, 5(4): 375-388
[35] IPPF 2006: From evidence to action: Advocating for comprehensive sexuality education. Accessed on 12dem2019, https://www.ippf.org/sites/default/files/from_evidence_to_action.pdf
[36] Picot J, Shepherd J, Kavanagh J. Behavioural interventions for the prevention of sexually transmitted infections in young people aged 13-19 years: a systematic review. Health Educ Res. 2012, 27(3):495-512.
[37] O'Connor C, Small SA,Cooney SM. Program fidelity and adaptation: Meeting local needs without compromising program effectiveness. 2007 issue 4. Accessed 12dec2019, http://fyi.uwex.edu/whatworkswisconsin/files/2014/04/whatworks_04.pdf.
[38] UNESCO 2013a. Accessed 12dec2019 https://unesdoc.unesco.org/ark:/48223/pf0000227146

References of this review's analyzed trials. (See Appendix A for a summary of these trials.)

[1] Krugu JK, Mevissen FE, Van Breukelen G. SPEEK: effect evaluation of a Ghanaian school-based and peer-led sexual education programme. Health Education Research 2018, 33(4): 292–314.
[2] Speizer IL, Mandal M, Xiong K. Methodology and baseline results from the evaluation of a sexuality education activity in mpumalanga and kwazulu-natal, south Africa. AIDS Education and Prevention 2018, 30(2): 152–168.
[3] Subedar H. Tackling HIV by empowering adolescent girls and young women: a multisectoral, government led campaign in South Africa. BMJ 2018, 363: k4585.
[4] Rokicki S, Fink G. Assessing the reach and effectiveness of mHealth: evidence from a reproductive health program for adolescent girls in Ghana. Rokicki and Fink BMC Public Health 2017, 17:969.
[5] Mathews C, Eggers SM, Townsend L. Effects of PREPARE, a Multi-component, School-Based HIV and Intimate Partner Violence (IPV) Prevention Programme on Adolescent Sexual Risk Behaviour and IPV: Cluster Randomised Controlled Trial. AIDS Behav 2016, 20(9): 1821–1840.
[6] Takele M, Ahmed A, Alemayehu Work A. Effects of peer education intervention on HIV/AIDS related sexual behaviors of secondary school students in Addis Ababa, Ethiopia: a quasi-experimental study. Reprod Health. 2015; 12: 84.
[7] van der Geugten J, van Meijel B, den Uyl MH. Evaluation of a Sexual and Reproductive Health Education Programme: Students' Knowledge, Attitude and Behaviour in Bolgatanga Municipality, Northern Ghana. Afr J Reprod Health 2015, 19(3):126-36.
[8] Isiugo-Abanihe UC, Olajide R, Nwokocha E.Adolescent Sexuality and Life Skills Education in Nigeria: To What Extent have Out-of-School Adolescents Been Reached? Afr J Reprod Health2015,19(1):101-11.
[9] Gaughran M, Asgary R. On-site comprehensive curriculum to teach reproductive health to female adolescents in Kenya. J Womens Health (Larchmt). 2014, 23(4):358-64.
[10] Saad A, Rampel L, Sabitu K. Impact of a customized peers facilitator training program related to sexual health intervention. International health 4 2012: 277-282.

[11] Michielsen K, Beauclair R, Delva W. Effectiveness of a peer-led HIV prevention intervention in secondary schools in Rwanda: results from a non-randomized controlled trial. BMC Public Health. 2012, 12:729.
[12] Mason-Jones AJ, Mathews C, Flisher AJ. Can peer education make a difference? Evaluation of a South African adolescent peer education program to promote sexual and reproductive health. AIDS Behav. 2011, 15(8):1605-11.
[13] Rijsdijk LE, Bos AE, Ruiter RA. The World Starts With Me: a multilevel evaluation of a comprehensive sex education programme targeting adolescents in Uganda. BMC Public Health. 2011 May 18;11:334.
[14] Doyle AM, Ross DA, Maganja K. Long-Term Biological and Behavioural Impact of an Adolescent Sexual Health Intervention in Tanzania: Follow-up Survey of the Community-Based MEMA kwa Vijana Trial. PLoS Med. 2010, 7(6):e1000287.
[15] Cowan FM, Pascoe SJ, Langhaug LF. The Regai Dzive Shiri project: results of a randomized trial of an HIV prevention intervention for youth. AIDS 2010, 24: 2541-2552.
[16] van der Maas F, Otte WM. Evaluation of HIV/AIDS secondary school peer education in rural Nigeria. Health Educ Res. 2009, 24(4):547-57.
[17] Halpern CT, Mitchell EM, Farhat T. Effectiveness of web-based education on Kenyan and Brazilian adolescents' knowledge about HIV/AIDS, abortion law, and emergency contraception: findings from TeenWeb. Soc Sci Med. 2008, 67(4):628-37.
[18] Esere MO. Effect of Sex Education Programme on at-risk sexual behaviour of school-going adolescents in Ilorin, Nigeria. Afr Health Sci. 2008 Jun;8(2):120-5.
[19] Miller AN, Mutungi M, Facchini E. An Outcome Assessment of an ABC-Based HIV Peer Education Intervention Among Kenyan University Students. J Health Commun. 2008,13(4):345-56.
[20] Mantell JE, Harrison A, Hoffman S. The Mpondombili Project: preventing HIV/AIDS and unintended pregnancy among rural South African school-going adolescents. Reprod Health Matters. 2006, 14(28):113-22.
[21] Terry P, Mhloyi M, Masvaure T. An examination of knowledge, attitudes and practices related to HIV/AIDS prevention in Zimbabwean university students. Comparing intervention program participants and non-participants. IJOID 2006, 10: 38-46.
[22] James S, Reddy P, Ruiter RA. The Impact of an HIV and AIDS Life Skills Program on Secondary School Students in KwaZulu-Natal, South Africa. AIDS Educ Prev. 2006, 18(4):281-94.
[23] James S, Reddy PS, Ruiter RA. The effects of a systematically developed photo-novella on knowledge, attitudes, communication and behavioural intentions with respect to sexually transmitted infections among secondary school learners in South Africa. Health Promot Int. 2005, 20(2):157-65.
[24] Agha S, Van Rossem R. Impact of a school-based peer sexual health intervention on normative beliefs, risk perceptions, and sexual behavior of Zambian adolescents. J Adolesc Health. 2004 May;34(5):441-52.
[25] Meekers D, Agha S, Klein M. The impact on condom use of the "100% Jeune" social marketing program in Cameroon. J Adolesc Health. 2005, 36(6):530.
[26] Speizer IS, Tambashe BO, Tegang SP. An evaluation of the "Entre Nous Jeunes" peer-educator program for adolescents in Cameroon. Stud Fam Plann. 2001, 32(4):339-51.
[27] Harvey B, Stuart J, Swan T. Evaluation of a drama-in-education programme to increase AIDS awareness in South African high schools: a randomized community intervention trial. Int J STD AIDS. 2000, 11(2):105-11.

7. Appendices

Appendix A: **Table 1** Summary of the 27 included trials for this review

Appendix B: Detailed Search strategy

Appendix C: Prisma Flow diagram

Appendix A: **Table 1** summarizes the findings of the 27 included trials for this review.

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
Krugu et al. [1]	2018	Ghana/ 1822 students aged 16–24 years	SPEEK (2012)	Relationships Skills for health and well-being The human body and development Sexual and reproductive health	-/risky situations, unsafe sexual activities, +/healthy relationship +-/skills to respond to pressure, setting personal limits and saying 'NO' +-/reproductive anatomy, menstruation, *infertility, wet dreams* -/pregnancy, pregnancy prevention, abortion, hiv/sti: transmission, prevention, symptoms, testing, condom use, contraceptives	***Health-related knowledge and attitudes*** Knowledge, attitude, self-efficacy, risk perception of: reproductive anatomy menstruation pregnancy (2) abortion hiv/sti (testing) (2) unintended sex condom use(13) contraceptives (1) sexual delay (2) ***Non-health outcomes*** Knowledge, attitude, self-efficacy, risk perception of: relationships and sex sexual rights (1) setting personal limits (4) Perceived normative beliefs
Speizer et al. [2]	2018	Mpumalanga and Kwazulu-natal, South	Life orientation curriculum (2015) (revised)	Understanding gender	New components: +/gender-based violence	***Sexual health outcomes***

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
		Africa/ 3739 girls of grade 10		Skills for health and well-being Sexuality and sexual behavior Sexual and reproductive health	+/referrals to health and social services +/sexuality education -/hiv prevention, testing +/mobilization, engagement, and sensitization of parents	*HSV-2 or pregnancy experience; and self-reported behaviors:* Ever tested for HIV Ever had sex Ever pregnant (or partner pregnant) (including current pregnancy) Used a condom at last sex Used a condom every time in past 3 months ***Health-related knowledge and attitudes*** Chance that you will get HIV in your lifetime Chance that you will fall pregnant (or get someone pregnant) before you finish school
Subedar et al. [3]	2018	South-Africa/adolescent girls and young women aged 15-24 years	She Conquers (a multisectoral, government led campaign) (2016)	Relationships Understanding gender Skills for health and well-being	+/positive parenting, parenting training, parenting programmes for families +/gender equality, gender based violence awareness: screening, counselling and support, post-exposure prophylaxis, termination of pregnancy +/communication skills, support for teen parents, life skills orientation, psychosocial support, adolescent youth friendly services, empowerment, coping and adjustment with stigma and discrimination	***Sexual health outcomes*** New hiv infections Incidence of teenage pregnancy Overall health outcome ***Non-health outcomes*** Experienced sexual and gender based violence (Economic) empowerment

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
				Sexual and reproductive health	-/hiv testing, sexual reproductive health, condom distribution, contraception, pregnancy test and referral, emergency contraception, termination of pregnancy, treatment adherence, pregnancy with hiv	
Rokicki et al. [4]	2017	The Greater Accra region, Ghana/ 205 students aged 14-25 years	mHealth (2014)	Skills for health and well-being The human body and development Sexual and reproductive health	+/communication with friends/family, learning to say no to sex -/menstruation -/pregnancy prevention, reproductive anatomy, sti: symptoms, transmission; contraception: condom, birth control pills, emergency contraception; risk and protective factors	***Sexual health outcomes*** Self-reported pregnancy Being sexually active ***Health-related knowledge and attitudes*** SRH knowledge (29questions)
Mathews et al. [5]	2016	Western Cape, South-Africa/ 6244 students average age 13	PREPARE (skills based education)(2013)	Relationships Values, rights, culture and sexuality Understanding gender Violence and staying safe	+/intimate relationships +/sexual violence: laws and legal support services; own values +/gender power inequities: power and roles +-/intimate partner violence, sexual violence: types of violence and warning signs; safety skills, risk monitoring, learn how to seek help +/assertive communication,	***Sexual health outcomes*** Sexual debut, condom use, unwilling/regretted first sex, vaginal/anal sex frequency, number sex partners, condom use last sex, contraceptive use last sex, condom use frequency, carrying condoms ***Health-related knowledge and attitudes***

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
				Skills for health and well-being Sexual and reproductive health	sexual decision making, empowerment, emotional safety, develop motivation and skills to delay sex -/use condoms, risk factors for hiv/sti/unwanted pregnancy/more partners; hiv prevention, services	Knowledge: condom use, hiv/aids Attitudes/intention/self-efficacy: condom use, delaying sex Risk susceptibility Risk severity ***Non-health outcomes*** Social norms (condom use, delaying sex) Intimate partner violence (IPV)(IPV victimization/ IPV perpetration)
Menna et al. [6]	2015	Addis Ababa, Ethiopia/ 560 students of grade 11	Peer education intervention (2013)	The human body and development Sexuality and sexual behavior Sexual and reproductive health	+-/human reproductive organs -/risky sexual behavior, number of sexual partners -/knowledge of hiv, hiv testing, hiv counseling, hiv prevention, hiv transmission, condom use	***Sexual health outcomes*** Ever had initiated sexual intercourse Ever tested for HIV Limiting sexual partner only to one in the last12 months Consistent use of Condom in the last 12 months Willingness to HCT within 2 months after the survey ***Health-related knowledge and attitudes*** Knowledge of HIV/AIDS
van der Geugten et al. [7]	2015	Bolgatanga Municipality, Northern Ghana/312	SRH programme (2013)	Relationships Values, rights, culture and sexuality	+/ falling in love, rights, myths +/ sexual rights, laws: female genital mutilation, abortion	***Health-related knowledge and attitudes*** Knowledge(27): basics of male and female body,

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
		students age range 12-23		Violence and staying safe The human body and development Sexuality and sexual behavior Sexual and reproductive health	+/abuse: boundaries and rights +-/basic of male and female body, menstruation, pregnancy, delivery +-/unwanted sex, when to have sex -/pregnancy prevention, teen pregnancy, condom, contraception, family planning, hiv/aids/std: what is, transmission, prevention, testing	menstruation, abortion, family planning, HIV/AIDS, STDs, female circumcision, male circumcision and wet dreams, pregnancy Behavioral intentions(4): condom use, ABC strategy and STD testing Attitudes(3): deciding to have sex ***Non-health outcomes*** Knowledge: sexual rights, relationships and sex attitudes: deciding to have a relationship
Uche et al. [8]	2013	Nigeria/248 out-of-school youth (15–24 years)	Family Life and HIV/AIDS Education (FLHE)(2003)	Relationships Values, rights, culture and sexuality Understanding gender Skills for health and well-being The human body and development	+/family life education, maturity +/differece traditional and modern values, social relationship +/acknowledgment of one's gender +/personal skills, life skills +-/reproduction, blood groups, puberty -/hiv/aids/sti: transmission, effect, prevention; premarital sex prevention, contraceptives, family planning, abstinence, unwanted pregnancy	***Health-related knowledge and attitudes*** Knowledge of: HIV and other STI transmission, control, prevention, personal hygiene Skills on: contraceptive, family planning Attitudinal disposition to the opposite sex: abstaining from sexual relationship ***Non-health outcomes*** Skills on: sex negotiation, counselling others against premarital sex. Better orientation Attitude toward women

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
				Sexual and reproductive health		Good and healthy sexual relationship with the opposite sex Knowledge of gender-based violence
Gaughran et al. [9]	2014	Laikipia District, Kenya/42 female teenagers 16 years old	Comprehensive Curriculum (2011)	Relationships Skills for health and well-being Sexual and reproductive health	+/healthy relationships, examples of safe and healthy choices +/community involvement, overcome fear of speaking about sex, peer pressure, self-evaluate personal relationships, self-efficacy -/hiv/aids/sti: transmission, what is, testing, spread, protection, contraceptives, methods of risk reduction, teen pregnancy +/hiv/aids/sti: stigma; to foster compassion and understanding for teen mothers	***Health-related knowledge and attitudes*** Knowledge, attitudes, practices and self-efficacy regarding STIs/HIV, teen pregnancy and family planning (basic contraception including abstinence and condom use) Gaps exposed: negotiating condom use, masturbation and its perceived consequences, female circumcision, HIV transmission risk factors
Saad et al. [10]	2012	Zaria, Northern Nigeria	Integrated HIV-STI Risk Reduction Program(2008)	Skills for health and well-being Sexual and reproductive health	-/enhance self-control skills: identify and avoid dangerous conditions, resist peer pressure to engage in risk behaviors, negotiate abstinence or condom use -/hiv/aids risk reduction: knowledge, prevention; supporting abstinence, gender issues related to hiv	***Health-related knowledge and attitudes*** HIV knowledge, prevention STI knowledge, prevention Attitude General health risk of sexual risk behaviors Condom use ***Non-health outcomes***

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
						Assertive and negotiation communication skills to avoid risky behaviors Stigma
Michielsen et al. [11]	2012	Bugesera, Rwanda/ 1950 students	peer-led HIV prevention intervention (2010)	Relationships Skills for health and well-being Sexual and reproductive health	+/respect within relationships -/personal responsibility for protective behavior -/HIV risk-reduction strategies: hiv/aids/sti prevention / attitudes / knowledge, family planning, pregnancy, condom use	***Sexual health outcomes*** Sexual risk behavior: being sexually active, sex in last six months, condom use at last sex ***Health-related knowledge and attitudes*** Knowledge of hiv protection modes, perceived severity to hiv, perceived susceptibility of hiv ***Non-health outcomes*** Enacted stigma
Mason-Jones et al. [12]	2011	Western Cape, South Africa/ 3934 students 15-16 years old	Sexual and Reproductive Health Promotion Program (2007)	Relationships Skills for health and well-being Sexual and reproductive health	+/identidy sexual health services, confidence building, decision-making, goal/ future orientation -/abstinence, condom use, sexual debut, hiv	***Sexual health outcomes*** Primary outcomes- Sexual health behaviors: not had sex age of sexual debut use of condoms at last sex ***Non-health outcomes*** Secondary outcomes- Related psychosocial outcomes: goal orientation decision-making future orientation

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
Rijsdijk et al. [13]	2011	Uganda/1864 students	the World Starts With Me (2008)	Relationships Values, rights, culture and sexuality Understanding gender Violence and staying safe Skills for health and well-being The human body and development Sexual and reproductive health	+/respect decisions partner +/(own) norms and values, social environment, cultural and political influences, human rights +/gender roles +/sexual harrassment/abuse, self-efficacy +/self-esteem, decision-making, autonomy, goal setting, future planning, peers and community +/body changes -/Hiv/aids: prevention, transmission	***Health-related knowledge and attitudes*** Knowledge concerning risky sexual behaviour leading to STI, HIV or pregnancy Self-efficacy, attitudes and intentions of: delay, condom use, non-coercive sex Beliefs concerning pregnancy, sti's and hiv Risk perception: pregnancy, hiv infection ***Non-health outcomes*** Perceived social norm of safe sex
Doyle et al. [14]	2010	Tanzania/13,814 young people aged 15–30 years	Community-Based MEMA kwa Vijana Trial(2002)	Relationships Values, rights, culture and sexuality Understanding gender	**+/**respecting other people's decisions, future planning +/misconceptions about sex +/gender equal abilities -/refusing temptations, saying no to sex +/making good decisions,	***Sexual health outcomes*** Sexual behaviour(9): sexual debut during follow-up age at first sex <16 >1 partner in last 12 mo used condom at last sex went to health facility for most recent STI

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
				Skills for health and well-being The human body and development Sexual and reproductive health	future planning +-/puberty, reproductive anatomy, menstruation -/reproductive health and why is it important, hiv/aids prevention, pregnancy, condoms	symptoms within past 12 mo Clinical and Biological outcomes(12) ***Health-related knowledge and attitudes*** Knowledge (9) of hiv/std acquisition/prevention, pregnancy prevention Attitudes to sex (3)
Cowan et al. [15]	2010	South-Eastern, Zimbabwe/4684 young people 18-22 years old	Regai Dzive Shiri project (2003) Content = MEMA kwa Vijana curriculum [artikel19]	Understanding gender Skills for health and well-being	Additional topics: +/gender issues +/communication, self-awereness, self-belief	***Sexual health outcomes*** *Biological outcomes:* Pregnancy, reported pregnancy and prevention Reported symptoms of STDs HIV infection HSV-2 infection Prevalence of hiv Reported sexual behavior: Ever had sex, sexual debut, condom use last sex, number of sex partners Clinic attendance ***Health-related knowledge and attitudes*** Knowledge: hiv/sti acquisition, pregnancy prevention Self-efficacy: condom, sexual refusal, hiv-testing

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
						Attitudes safe sex and condoms ***Non-health outcomes*** Attitudes gender empowerment: right within marriage, control over life and future Perceptions of staff
van der Maas et al. [16]	2009	Izzi, Nigeria/ 465 adolescents	HIV/ AIDS awareness education programs (2004)	Sexual and reproductive health	UNPFA/UNAIDS Peer Education Toolkit, the Family Health International peer-to-peer training guide life skills -/hiv/aids: awereness,transmission, Prevention,information services,treatment,symptoms; abstinence +/ stigmatisation of hiv positive person, misconceptions	***Sexual health outcomes*** Sexual risk behavior: two or more times sex during last 4 weeks, two or more sexual partners, used condom during last sexual intercourse, ever done an HIV test ***Health-related knowledge and attitudes*** Knowledge: HIV transmission, prevention, treatment and symptoms, accessibility to different sources of HIV/ AIDS information ***Non-health outcomes*** Misconceptions hiv transmission mode: stigma/discrimination and sexual behavior(social norms)

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
Halpern et al. [17]	2008	Nairobi, Kenya/1178 students mean age 16,5 years old	TeenWeb (2002-3)	Values, rights, culture and sexuality Sexual and reproductive health	+/abortion laws -/hiv/aids prevention, condom use, access to hiv testing, emergency contraception, pregnancy prevention	***Health-related knowledge and attitudes*** Condom use norms Condom effectiveness (pregnancy, aids) Access to condoms Emergency contraception knowledge ***Non-health outcomes*** Abortion (law) knowledge
Esere [18]	2008	Ilorin, Nigeria/24 school-going adolescents aged 13-19 years	Sex Education Intervention Programme (2006)	Skills for health and well-being The human body and development Sexual and reproductive health	+/negotiation in relationships, assertiveness skill training, make informed decisions +-/puberty, reproduction -/contraception; risk avoidance, hiv/aids, risk for std	***Sexual health outcomes*** Self-reported exposure to sexually transmitted diseases, multiple sex partners, anal sex, oral sex, non use of condom. (risk sexual behavior) ***Health-related knowledge and attitudes*** Knowledge of sexual health
Miller et al. [19]	2008	Nairobi, Kenya/746 university students	I Choose Life—Africa (ABC-Based HIV Peer Education Intervention)(2004)	Skills for health and well-being Sexual and reproductive health	+-/being faithful discuss condom use and hiv with partner -/hiv education, abstinence, condoms, hiv testing, safe sex, hiv/aids counseling	***Sexual health outcomes*** Behavior: abstinence, number of sexual partners, condom use, hiv testing ***Health-related knowledge and attitudes*** Attitudes/knowledge related to hiv: abstinence, number of

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
						sexual partners, condom use, hiv testing
Mantell et al. [20]	2006	Rural KwaZulu-Natal, South-Africa/670 adolescents aged 15-17	The Mpondombili Project (2003)	Values, rights, culture and sexuality Understanding gender Violence and staying safe Skills for health and well-being The human body and development Sexuality and sexual behavior Sexual and reproductive health	+/sexual rights, social norms about sexuality, normative beliefs, stereotypes +/gender inequality, stigma and discrimination, gender role norms +/managing abusive situations +/sexual communication, sexual negotiation, decision-making, knowledge-based leadership skills, self-confidence, empowerment, healthy sexuality, refusal skills +-/reproduction -/risk behaviors -/hiv transmission, sti transmission, hiv testing, pregnancy, contraception, fear of AIDS, abstinence, safe sex	***Sexual health outcomes*** Risk avoidance: delay onset sexual debut Risk reduction: condom use ***Health-related knowledge and attitudes*** Knowledge/attitudes: hiv/aids prevention, condom use, unintended pregnancy prevention ***Non-health outcomes*** Norms/beliefs/attitudes about gender and sexuality Sexual relationships Comfort in talking about sex Concept of healthy sexuality
Terry et al. [21]	2006	Zimbabwe/933 adolescents aged 15-30	SHAPE (2004)	Values, rights, culture and sexuality	+/cultural power dynamics, attitudes towards equal rights	***Sexual health outcomes*** Being sexually abstinent

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
				Understanding gender Skills for health and well-being Sexual and reproductive health	+/gender equity +/sexual decision-making, life skills -/hiv/aids prevention, condom use, hiv testing, abstinence, sti treatment, pregnancy	Limiting sexual partners Access to hiv testing ***Health-related knowledge and attitudes*** HIV/AIDS prevention: knowledge, attitudes, practices Understand prevention benefits of condom use ***Non-health outcomes*** Cultural power dynamics Gender sensitivity Sexual-decision making
Magnani et al. [22]	2004	Kwazulu-Natal, South-Africa/2222 students aged 14-24 years	The Life Skills Program(2001)	Relationships Understanding gender Violence and staying safe Skills for health and well-being The human body and development Sexuality and sexual behavior Sexual and reproductive health	+/**s**exual relationships +/understanding of gender +/violence, sexual abuse +/find social support in community, negotiation, assertiveness +-/lifecycle, reproductive biology -/sexual risk taking +/understanding of sex and sexuality -/hiv/aids/sti risk /prevention/transmission, condom use, contraception, oral contraceptives, obtain condoms +/health seeking behaviors,	***Sexual health outcomes*** Sexual behavior: sexual initiation, secondary abstinence, condom use ***Health-related knowledge and attitudes*** Knowledge, attitude and skills: hiv/aids/sti transmission /prevention/symptoms, pregnancy, condom use, contraceptives

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
					accept, cope and life positively with the knowledge of being hiv positive, behavior towards people with hiv (compassion)	
Shamagonam et al. [23]	2005	Kwazulu-Natal, South-Africa/1168 learners aged 15-22 years	Laduma (2001)	Relationships Values, rights, culture and sexuality Skills for health and well-being Sexual and reproductive health	+-/sexual relationships +-/cultural norms +/skills to enable effective communication/decision-making/the ability to resist negative peer influences -/sti spread, causes; safe sex, aids, abstinence, condom use	***Health-related knowledge and attitudes*** Knowledge on the spread of sti's Attitude to condom use Intention to practice safe sex ***Non-health outcomes*** Communication about STIs with friends, gf/boyfriend, parents Attitude to people with STIs and/or HIV/AIDS
Agha et al. [24]	2002 2004	Lusaka, Zambia/416 respondents aged 14–23 years	The Zambia Peer Sexual Health Intervention (2000)	Values, rights, culture and sexuality Sexuality and sexual behavior Sexual and reproductive health	+/social norms -/risky sexual behavior, not feeling ashamed being a virgin -/ safer sex practices, abstinence, condom use, hiv/sti transmission /prevention, unwanted pregnancies, preventing pregnancy, infertility, preventive sexual behavior,	***Sexual health outcomes*** Reported sexual behavior(10): condom use, casual/regular partner, abstinence ***Health-related knowledge and attitudes*** Knowledge and normative beliefs about abstinence and condom use, their personal hiv risk perception, and safer

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
					condom use with regular partner, condom use with casual partner, discuss condom use with regular partner	sex practices (eg multiple regular partnerships)
Meekers et al.[25]	2004	Cameroon/5633 students aged 15-24 years	"100% Jeune" social marketing program (2000 and 2002)	Relationships Skills for health and well-being Sexual and reproductive health	*+-/the meaning of love, serial monogamy* +-/interpersonal communications, empowering to practice safe sex, discuss sensitive topics, negotiation condom use, feeling confident about condom use -/condom use, risk perception, sti/hiv knowledge /prevention/testing, abstinence, reproductive health issues, modern contraceptives, *religious leaders' opinions about hiv/aids*, empowerment to buy condoms, hiv risk behavior, family planning	***Sexual health outcomes*** Reported condom use ***Health-related knowledge and attitudes*** Condom use: effectiveness, self-efficacy and access Perceived severity of health treat Perceived risk of hiv infection ***Non-health outcomes*** Perceived social support
Speizer et al. [26]	2001	Nkongsamba, Mbalmayo, Cameroon/802 students aged 12-25	Entre Nous Jeunes intervention (1999)	Skills for health and well-being The human body and development Sexual and reproductive health	+-/condom use negotiation skills +-/reproductive anatomy -/sti/ hiv preventive behaviors, modern contraception, risk of acquiring sti, reproductive health services, symptoms of a female/male sti, condom use, family	***Sexual health outcomes*** Behavior variables: condom use at last sex, use of contraception, ever had sex, had sex in last 3mo ***Health-related knowledge and attitudes*** Knowledge of modern contraception, of

Reference	Year	Location/Sample at baseline	Name of the program	Covered concepts	Program content description	Results: Change in Outcome
					planning, reproductive health issues, unintended pregnancy, reproductive health activities	symptoms of a female/male sti
Harvey et al. [27]	2000	Kwazulu-Natal, South-Africa/	AIDS awareness drama-in-education programme (DramAide and booklet interventions) (1994)	Values, rights, culture and sexuality Sexual and reproductive health	+-/social norms, hiv misconceptions, peer and community norms -/hiv/aids awereness, education, prevention, transmission, preventing heterosexual transmission	***Sexual health outcomes*** Reported sexual behavior: ever had sex, condom use, different partners last 3mo, std treatment last 6mo ***Health-related knowledge and attitudes*** Knowledge about HIV/ AIDS (general, transmission and misconceptions) Attitudes relating to personal susceptibility, immediacy of threat and towards people with AIDS Perceived severity of AIDS Self-efficacy in preventive behavior Perceived confidence in preventive measures ***Non-health outcomes*** Perceived peer and community norms about condom use

Appendix B: Detailed Search Strategy

	Pubmed range: vanaf 01/01/2000	***Aantal bekomen artikelen***
Concept 1: Sub Saharan Africa	("Africa South of the Sahara"[Mesh] OR "Africa South of the Sahara"[TIAB] OR Sub-Saharan Africa*[TIAB] OR Subsaharan Africa*[TIAB] OR "Africa, Central"[Mesh] OR "Africa Centra"[TIAB] OR Central Africa*[TIAB] OR "Cameroon"[Mesh] OR Cameroon*[TIAB] OR "Republic of Cameron"[TIAB] OR "United Republic of Cameroon"[TIAB] OR "Central African Republic"[Mesh] OR "Central African Republic"[TIAB] OR "Ubangi-Shari"[TIAB] OR "Chad"[Mesh] OR "Chad"[TIAB] OR "Congo"[Mesh] OR Congo*[TIAB] OR "Republic of the Congo"[TIAB] OR "Congo Brazzaville"[TIAB] OR "Democratic Republic of the Congo"[Mesh] OR "Democratic Republic of the Congo"[TIAB] OR "Zaire"[TIAB] OR "Belgian Congo"[TIAB] OR "Katanga"[TIAB] OR "Equatorial Guinea"[Mesh] OR "Equatorial Guinea"[TIAB] OR "Republic of Equatorial Guinea"[TIAB] OR "Spanish Guinea"[TIAB] OR "Guinea, Spanish"[TIAB] OR "Rio Muni"[TIAB] OR "Gabon"[Mesh] OR "Gabon"[TIAB] OR "Gabonese Republic"[TIAB] OR "Sao Tome and Principe"[Mesh] OR "Sao Tome and Principe"[TIAB] OR "Africa, Eastern"[Mesh] OR "Africa, Eastern"[TIAB] OR East Africa*[TIAB] OR "Burundi"[Mesh] OR Burundi*[TIAB] OR "Republic of Burundi"[TIAB] OR Urundi*[TIAB] OR "Djibouti"[Mesh] OR "Djibouti"[TIAB] OR "Republic of Djibouti"[TIAB] OR "French Somaliland"[TIAB] OR "Eritrea"[Mesh] OR "Eritrea"[TIAB] OR "Ethiopia"[Mesh] OR Ethiopia*[TIAB] OR "Federal Democratic Republic of Ethiopia"[TIAB] OR "Kenya"[Mesh] OR Kenya*[TIAB] OR "Republic of Kenya"[TIAB] OR "Rwanda"[Mesh] OR Rwanda*[TIAB] OR "Republic of Rwanda"[TIAB] OR Ruanda*[TIAB] OR "Somalia"[Mesh] OR Somalia*[TIAB] OR "South Sudan"[Mesh] OR South Sudan*[TIAB] OR "Sudan"[Mesh] OR Sudan*[TIAB] OR "Republic of the Sudan"[TIAB] OR "Tanzania"[Mesh] OR "Tanzania"[TIAB] OR "United Republic of Tanzania"[TIAB] OR "Zanzibar"[TIAB] OR "Tanganyika"[TIAB] OR "Uganda"[Mesh] OR Uganda*[TIAB] OR "Africa, Southern"[Mesh] OR "Africa Southern"[TIAB] OR South Africa*[TIAB] OR "Angola"[Mesh] OR "Angola"[TIAB] OR "Botswana"[Mesh] OR "Botswana"[TIAB] OR "Bechuanaland"[TIAB] OR	**556559**

	“Kalahari”[TIAB] OR “Lesotho”[Mesh] OR “Lesotho”[TIAB] OR “Basutoland”[TIAB] OR “Kingdom of Lesotho”[TIAB] OR “Malawi”[Mesh] OR “Malawi”[TIAB] OR “Republic of Malawi”[TIAB] OR “Nyasaland”[TIAB] OR “Mozambique”[Mesh] OR “Mozambique”[TIAB] OR “Republic of Mozambique”[TIAB] OR “Portuguese East Africa”[TIAB] OR “Namibia”[Mesh] OR Namibia*[TIAB] OR Southwest Africa*[TIAB] OR “Republic of Namibia”[TIAB] OR South West Africa*[TIAB] OR “South Africa”[Mesh] OR South Africa*[TIAB] OR “Union of South Africa”[TIAB] OR “Republic of South Africa”[TIAB] OR “Swaziland”[Mesh] OR “Swaziland”[TIAB] OR “Zambia”[Mesh] OR Zambia*[TIAB] OR “Rhodesia Northern”[TIAB] OR “Northern Rhodesia”[TIAB] OR “Republic of Zambia”[TIAB] OR “Zimbabwe”[Mesh] OR Zimbabwe*[TIAB] OR “Zimbabwe Rhodesia”[TIAB] OR “Southern Rhodesia”[TIAB] OR “Republic of Zimbabwe”[TIAB] OR “Rhodesia, Southern”[TIAB] OR “Africa, Western”[Mesh] OR “Africa Western”[TIAB] OR “Africa, West”[TIAB] OR West Africa*[TIAB] OR “Benin”[Mesh] OR “Benin”[TIAB] OR “Republic of Benin”[TIAB] OR “Dahomey”[TIAB] OR “Burkina Faso”[Mesh] OR “Burkina Faso”[TIAB] OR “Upper Volta”[TIAB] OR “Burkina Fasso”[TIAB] OR “Cabo Verde”[Mesh] OR “Cabo Verde”[TIAB] OR “Republic of Cape Verde”[TIAB] OR “Cape Verde”[TIAB] OR “Cote d'Ivoire”[Mesh] OR “Cote d'Ivoire”[TIAB] OR “Ivory Coast”[TIAB] OR “Republic of Cote dilvoire”[TIAB] OR “Gambia”[Mesh] OR Gambia*[TIAB] OR “Republic of the Gambia”[TIAB] OR “Ghana”[Mesh] OR Ghana*[TIAB] OR “Republic of Ghana”[TIAB] OR “Gold Coast”[TIAB] OR “Guinea”[Mesh] OR Guinea*[TIAB] OR “Republic of Guinea”[TIAB] OR “French Guinea”[TIAB] OR “Guinea-Bissau”[Mesh] OR Guinea-Bissau*[TIAB] OR “Republic of Guinea-Bissau”[TIAB] OR “Portuguese Guinea”[TIAB] OR “Guinea, Portuguese”[TIAB] OR “Guinea-Bissau, Republic of”[TIAB] OR “Liberia”[Mesh] OR Liberia*[TIAB] OR “Republic of Liberia”[TIAB] OR “Mali”[Mesh] OR Mali*[TIAB] OR “Republic of Mali”[TIAB] OR “Mauritania”[Mesh] OR Mauritania*[TIAB] OR “Niger”[Mesh] OR Niger*[TIAB] OR “Republic of Niger”[TIAB] OR “Nigeria”[Mesh] OR Nigeria*[TIAB] OR “Federal Republic of Nigeria”[TIAB] OR “Senegal”[Mesh] OR Senegal*[TIAB] OR “Republic of Senegal”[TIAB] OR “Sierra Leone”[Mesh] OR Sierra Leone*[TIAB] OR “Republic of Sierra Leone”[TIAB] OR “Togo”[Mesh] OR Togo*[TIAB] OR “Togolese Republic”[TIAB] OR black	

	africa*[TIAB] OR “cameroun”[TIAB] OR “Cape Verde Republic”[TIAB] OR “Centrafrican Republic”[TIAB] OR “Centrafrique”[TIAB] OR “Central African Empire”[TIAB] OR Tchad*[TIAB] OR “comoro islands”[TIAB] OR “congo leopoldville”[TIAB] OR “french sudan”[TIAB] OR “gaboon”[TIAB] OR “The Gambia”[TIAB] OR “Malagasy Republic”[TIAB] OR “Mayotte”[TIAB] OR mocambique*[TIAB] OR “Sahel”[TIAB] OR “Democratic Republic of Congo”[TIAB] OR “DCR”[TIAB] OR “Côte d’Ivoire”[TIAB] OR “Mauritius”[Mesh] OR Mauritius*[TIAB] OR “Reunion”[Mesh] OR Reunion*[TIAB] OR “Seychelles”[Mesh] OR “Seychelles”[TIAB] OR “SSA”[TIAB]) **NOT** (“Guinea Pigs”[Mesh] OR Guinea Pig*[TIAB] OR “Aspergillus niger”[Mesh] OR “Aspergillus niger”[TIAB])	
Concept 2: Sex education	("education"[Mesh] OR education*[ti] OR "education"[Subheading] OR program*[ti] OR training*[ti] OR intervention*[ti] OR instruction*[ti]) **AND** (“sexual health”[Mesh] OR “sexual health”[ti] OR “sexual well-being”[ti] OR “sexual wellbeing”[ti] OR “Sexual and reproductive health”[ti] OR “SRH”[ti] OR “sexuality education”[ti] OR life skill education*[ti] OR family planning education*[ti])	**719886** **4050**
Concept 3: Adolescent	(“adolescent”[Mesh] OR adolescen*[TIAB] OR teen*[TIAB] OR teenager*[TIAB] OR youth*[TIAB] OR puber*[TIAB] OR "young adult"[Mesh] OR young adult*[TIAB] OR young people*[TIAB] OR “young men”[TIAB] OR “young women”[TIAB] OR schoolchild*[TIAB]) **NOT** (“child”[Mesh] OR child*[TIAB] OR “infant”[Mesh] OR infant*[TIAB] OR pediatr*[TIAB] OR paediatr*[TIAB]) OR “adult”[MeSH:noexp])	**940323**
Combinatie van concepten geeft dit aantal resultaten		100

	Embase range: vanaf 01/01/2000	***Aantal bekomen artiken***
Concept 1: Sub Saharan Africa	('Africa South of the Sahara'/exp OR 'Africa South of the Sahara':ti,ab,kw OR 'Sub-Saharan Africa*':ti,ab,kw OR 'Subsaharan Africa*':ti,ab,kw OR 'Africa, Sub-Saharan':ti,ab,kw OR 'Africa, Central':ti,ab,kw OR 'Africa, Centra':ti,ab,kw OR 'Central Africa'/exp OR 'Central Africa*':ti,ab,kw OR 'Cameroon'/exp OR Cameroon*:ti,ab,kw OR 'Republic of Cameron':ti,ab,kw OR 'United Republic of Cameroon':ti,ab,kw OR 'Central African Republic':ti,ab,kw OR 'Central African Republic':ti,ab,kw OR 'Ubangi-Shari':ti,ab,kw OR 'Chad'/exp OR 'Chad':ti,ab,kw OR 'Congo'/exp OR Congo*:ti,ab,kw OR 'Republic of the Congo':ti,ab,kw OR 'Congo Brazzaville':ti,ab,kw OR 'Democratic Republic of the Congo':ti,ab,kw OR 'Democratic Republic of the Congo':ti,ab,kw OR 'Zaire':ti,ab,kw OR 'Belgian Congo':ti,ab,kw OR 'Katanga':ti,ab,kw OR 'Equatorial Guinea'/exp OR 'Equatorial Guinea':ti,ab,kw OR 'Republic of Equatorial Guinea':ti,ab,kw OR 'Spanish Guinea':ti,ab,kw OR 'Guinea, Spanish':ti,ab,kw OR 'Rio Muni':ti,ab,kw OR 'Gabon'/exp OR 'Gabon':ti,ab,kw OR 'Gabonese Republic':ti,ab,kw OR 'Sao Tome and Principe':ti,ab,kw OR 'Africa, Eastern':ti,ab,kw OR 'East Africa*':ti,ab,kw OR 'Burundi'/exp OR Burundi*:ti,ab,kw OR 'Republic of Burundi':ti,ab,kw OR Urundi*:ti,ab,kw OR 'Djibouti'/exp OR 'Djibouti':ti,ab,kw OR 'Somaliland':ti,ab,kw OR 'Republic of Djibouti':ti,ab,kw OR 'French Somaliland':ti,ab,kw OR 'Eritrea'/exp OR 'Eritrea':ti,ab,kw OR 'Ethiopia'/exp OR Ethiopia*:ti,ab,kw OR 'Federal Democratic Republic of Ethiopia':ti,ab,kw OR 'Kenya'/exp OR Kenya*:ti,ab,kw OR 'Republic of Kenya':ti,ab,kw OR 'Rwanda'/exp OR Rwanda*:ti,ab,kw OR 'Republic of Rwanda':ti,ab,kw OR Ruanda*:ti,ab,kw OR 'Somalia'/exp OR Somalia*:ti,ab,kw OR 'South Sudan'/exp OR 'South Sudan*':ti,ab,kw OR 'Sudan'/exp OR Sudan*:ti,ab,kw OR 'Republic of the Sudan':ti,ab,kw OR 'Tanzania'/exp OR Tanzania*:ti,ab,kw OR 'United Republic of Tanzania':ti,ab,kw OR 'Zanzibar':ti,ab,kw OR 'Tanganyika':ti,ab,kw OR 'Uganda'/exp OR Uganda*:ti,ab,kw OR 'Africa, Southern':ti,ab,kw OR 'Africa, Southern':ti,ab,kw OR 'South Africa'/exp OR 'South Africa*':ti,ab,kw OR 'Angola'/exp OR	811,294

	'Angola':ti,ab,kw OR 'Botswana'/exp OR 'Botswana':ti,ab,kw OR 'Bechuanaland':ti,ab,kw OR 'Kalahari':ti,ab,kw OR 'Lesotho'/exp OR 'Lesotho':ti,ab,kw OR 'Basutoland':ti,ab,kw OR 'Kingdom of Lesotho':ti,ab,kw OR 'Malawi'/exp OR 'Malawi':ti,ab,kw OR 'Republic of Malawi':ti,ab,kw OR 'Nyasaland':ti,ab,kw OR 'Mozambique'/exp OR 'Mozambique':ti,ab,kw OR 'Republic of Mozambique':ti,ab,kw OR 'Portuguese East Africa':ti,ab,kw OR 'Namibia'/exp OR Namibia*:ti,ab,kw OR 'Southwest Africa*':ti,ab,kw OR 'Republic of Namibia':ti,ab,kw OR 'South West Africa*':ti,ab,kw OR 'Union of South Africa':ti,ab,kw OR 'Republic of South Africa':ti,ab,kw OR 'Swaziland'/exp OR 'Swaziland':ti,ab,kw OR 'Zambia'/exp OR Zambia*:ti,ab,kw OR 'Rhodesia, Northern':ti,ab,kw OR 'Northern Rhodesia':ti,ab,kw OR 'Republic of Zambia':ti,ab,kw OR 'Zimbabwe'/exp OR Zimbabwe*:ti,ab,kw OR 'Zimbabwe Rhodesia':ti,ab,kw OR 'Southern Rhodesia':ti,ab,kw OR 'Republic of Zimbabwe':ti,ab,kw OR 'Rhodesia, Southern':ti,ab,kw OR 'Africa, Western':ti,ab,kw OR 'Africa, West':ti,ab,kw OR 'West Africa*':ti,ab,kw OR 'Benin'/exp OR 'Benin':ti,ab,kw OR 'Republic of Benin':ti,ab,kw OR 'Dahomey':ti,ab,kw OR 'Burkina Faso'/exp OR 'Burkina Faso':ti,ab,kw OR 'Upper Volta':ti,ab,kw OR 'Burkina Fasso':ti,ab,kw OR 'Cabo Verde':ti,ab,kw OR 'Republic of Cape Verde':ti,ab,kw OR 'Cape Verde'/exp OR 'Cape Verde':ti,ab,kw OR 'Ivory Coast':ti,ab,kw OR 'Republic of Cote dilvoire':ti,ab,kw OR 'Gambia'/exp OR 'Gambia':ti,ab,kw OR 'Republic of the Gambia':ti,ab,kw OR Ghana*:ti,ab,kw OR 'Ghana'/exp OR 'Republic of Ghana':ti,ab,kw OR 'Gold Coast':ti,ab,kw OR Guinea*:ti,ab,kw OR 'Guinea'/exp OR 'Republic of Guinea':ti,ab,kw OR 'French Guinea':ti,ab,kw OR 'Guinea, Republic of':ti,ab,kw OR 'Guinea-Bissau'/exp OR 'Guinea-Bissau*':ti,ab,kw OR 'Republic of Guinea-Bissau':ti,ab,kw OR 'Portuguese Guinea':ti,ab,kw OR 'Guinea, Portuguese':ti,ab,kw OR 'Guinea-Bissau, Republic of':ti,ab,kw OR Liberia*:ti,ab,kw OR 'Liberia'/exp OR 'Republic of Liberia':ti,ab,kw OR 'Mali'/exp OR Mali*:ti,ab,kw OR 'Republic of Mali':ti,ab,kw OR 'Mauritania':ti,ab,kw OR 'Niger'/exp OR Niger*:ti,ab,kw OR 'Republic of Niger':ti,ab,kw OR 'Nigeria'/exp OR Nigeria*:ti,ab,kw OR 'Federal Republic of Nigeria':ti,ab,kw OR 'Senegal'/exp OR Senegal*:ti,ab,kw OR 'Republic of Senegal':ti,ab,kw OR 'Sierra Leone'/exp OR 'Sierra	

	Leone*':ti,ab,kw OR 'Republic of Sierra Leone':ti,ab,kw OR 'Togo'/exp OR Togo*:ti,ab,kw OR 'Togolese Republic':ti,ab,kw OR 'black africa*':ti,ab,kw OR 'cameroun':ti,ab,kw OR 'Cape Verde Republic':ti,ab,kw OR 'Centrafrican Republic':ti,ab,kw OR 'Centrafrique':ti,ab,kw OR 'Central African Empire':ti,ab,kw OR Tchad*:ti,ab,kw OR 'comoro islands':ti,ab,kw OR 'congo leopoldville':ti,ab,kw OR 'french sudan':ti,ab,kw OR 'gaboon':ti,ab,kw OR 'The Gambia':ti,ab,kw OR 'Malagasy Republic':ti,ab,kw OR 'Mayotte':ti,ab,kw OR mocambique*:ti,ab,kw OR 'Sahel':ti,ab,kw OR 'Democratic Republic of Congo':ti,ab,kw OR 'DCR':ti,ab,kw OR Mauritius*:ti,ab,kw OR Reunion*:ti,ab,kw OR 'Seychelles':ti,ab,kw OR 'SSA':ti,ab,kw) **NOT** ('guinea pig'/exp OR 'guinea pig*':ti,ab,kw OR 'Aspergillus niger'/exp OR 'aspergillus niger':ti,ab,kw)	
Concept 2: Sex education	('education'/exp OR education*:ti OR program*:ti OR 'training'/exp OR training*:ti OR intervention*:ti OR instruction*:ti) **AND** ('sexual health'/exp OR 'sexual health':ti OR 'sexual well-being':ti OR 'sexual wellbeing':ti OR 'Sexual and reproductive health':ti OR 'SRH':ti OR 'sexual education'/exp OR 'sexuality education*':ti OR 'life skill education*':ti OR 'family planning education*':ti)	2,075,297 22,179
Concept 3: Adolescents	('adolescent'/exp OR adolescen*:ti,ab,kw OR teen*:ti,ab,kw OR teenager*:ti,ab,kw OR youth*:ti,ab,kw OR puber*:ti,ab,kw OR 'young adult'/exp OR 'young adult*':ti,ab,kw OR 'young people*':ti,ab,kw OR 'young men':ti,ab,kw OR 'young women':ti,ab,kw OR 'school child'/exp OR 'school child*':ti,ab,kw) **NOT** ('child'/exp OR 'child*':ti,ab,kw OR 'infant'/exp OR 'infant*':ti,ab,kw OR 'pediatr*':ti,ab,kw OR 'paediatr*':ti,ab,kw)	687,819
Combinatie van concepten geeft dit aantal resultaten		385

	Web of Science range: vanaf 01/01/2000	***Aantal bekomen artikelen***
Concept 1: Sub Sahara Africa	(TS="Africa South of the Sahara" OR TS="Sub-Saharan Africa*" OR TS="Subsaharan Africa*" OR TS="Africa, Sub-Saharan" OR TS="Africa, Central" OR TS="Africa, Centra" OR TS="Central Africa*" OR TS="Cameroon*" OR TS="Republic of Cameron" OR TS="United Republic of Cameroon" OR TS="Central African Republic" OR TS="Ubangi-Shari" OR TS="Chad" OR TS="Congo*" OR TS="Republic of the Congo" OR TS="Congo Brazzaville" OR TS="Democratic Republic of the Congo" OR TS="Zaire" OR TS="Belgian Congo" OR TS="Katanga" OR TS="Equatorial Guinea" OR TS="Equatorial Guinea" OR TS="Republic of Equatorial Guinea" OR TS="Spanish Guinea" OR TS="Guinea, Spanish" OR TS="Rio Muni" OR TS="Gabon*" OR TS="Gabonese Republic" OR TS="Sao Tome and Principe" OR TS="Sao Tome and Principe" OR TS="Africa, Eastern" OR TS="Africa, Eastern" OR TS="East Africa*" OR TS="Burundi*" OR TS="Republic of Burundi" OR TS="Urundi*" OR TS="Djibouti" OR TS="Republic of Djibouti" OR TS="French Somaliland" OR TS="Eritrea" OR TS="Ethiopia*" OR TS="Federal Democratic Republic of Ethiopia" OR TS="Kenya*" OR TS="Republic of Kenya" OR TS=Rwanda* OR TS="Republic of Rwanda" OR TS=Ruanda* OR TS="Somalia*" OR TS="South Sudan*" OR TS="Sudan*" OR TS="Republic of the Sudan" OR TS="Tanzania*" OR TS="United Republic of Tanzania" OR TS="Zanzibar*" OR TS="Tanganyika" OR TS="Uganda*" OR TS="Africa, Southern" OR TS="Africa, Southern" OR TS="South Africa*" OR TS="Angola*" OR TS="Botswana*" OR TS="Bechuanaland" OR TS="Kalahari" OR TS="Lesotho" OR TS="Basutoland" OR TS="Kingdom of Lesotho" OR TS="Malawi*" OR TS="Republic of Malawi" OR TS="Nyasaland" OR TS="Mozambique" OR TS="Republic of Mozambique" OR TS="Portuguese East Africa" OR TS="Namibia*" OR TS="Southwest* Africa*" OR TS="Republic of Namibia" OR TS="South West Africa*" OR TS="South Africa*" OR TS="Union of South Africa" OR TS="Republic of South Africa" OR TS="Swaziland" OR TS="Zambia*" OR TS="Rhodesia, Northern" OR TS="Northern Rhodesia" OR TS="Republic of Zambia" OR TS="Zimbabwe*" OR TS="Zimbabwe Rhodesia" OR TS="Southern Rhodesia" OR TS="Republic of Zimbabwe" OR TS="Rhodesia, Southern" OR TS="Africa, Western" OR TS="Africa, Western" OR TS="Africa, West" OR	866,418

	TS="West Africa*" OR TS="Benin*" OR TS="Republic of Benin" OR TS="Dahomey" OR TS="Burkina Faso" OR TS="Burkina Faso" OR TS="Upper Volta" OR TS="Burkina Fasso" OR TS="Cabo Verde" OR TS="Republic of Cape Verde" OR TS="Cape Verde" OR TS="Cote d'Ivoire" OR TS="Cote d'Ivoire" OR TS="Ivory Coast" OR TS="Republic of Cote dilvoire" OR TS="Gambia*" OR TS="Republic of the Gambia" OR TS="Ghana*" OR TS="Republic of Ghana" OR TS="Gold Coast" OR TS="Guinea*" OR TS="Guinea, French" OR TS="Republic of Guinea" OR TS="French Guinea" OR TS="Guinea, Republic of" OR TS="Guinea-Bissau" OR TS="Guinea-Bissau*" OR TS="Republic of Guinea-Bissau" OR TS="Portuguese Guinea" OR TS="Guinea, Portuguese" OR TS="Guinea-Bissau, Republic of" OR TS="Liberia*" OR TS="Republic of Liberia" OR TS="Mali*" OR TS="Republic of Mali" OR TS="Mauritania*" OR TS="Niger*" OR TS="Republic of Niger" OR TS="Nigeria*" OR TS="Federal Republic of Nigeria" OR TS="Senegal*" OR TS="Republic of Senegal" OR TS="Sierra Leone" OR TS="Sierra Leone*" OR TS="Republic of Sierra Leone" OR TS="Togo*" OR TS="Togolese Republic" OR TS="black africa*" OR TS="cameroun*" OR TS="Cape Verde Republic" OR TS="Centrafrican Republic" OR TS="Centrafrique*" OR TS="Central African Empire" OR TS="Tchad" OR TS="comoro islands" OR TS="congo leopoldville" OR TS="french sudan" OR TS="gaboon*" OR TS="The Gambia" OR TS="Malagasy Republic" OR TS="Mayotte" OR TS="mocambique*" OR TS="Sahel" OR TS="Democratic Republic of Congo" OR TS="DCR" OR TS="Côte d'Ivoire" OR TS="Mauritius*" OR TS="Reunion*" OR TS="Seychelles" OR TS="SSA") **NOT** (TS="Guinea Pig*" OR TS="Aspergillus niger")	
Concept 2: Sex education	(TI="education*" OR TI="program*" OR TI="training*" OR TI="intervention*" OR TI="instruction*") **AND** (TI="sexual health" OR TI="sexual well-being" OR TI="sexual wellbeing" OR TI="Sexual and reproductive health" OR TI="SRH" OR TI="sex education*" OR TI="life skill education*" OR TI="family planning education*")	755,224 6,267
Concept 3: Adolescents	(TS="adolescen*" OR TS="teen*" OR TS="teenager*" OR TS="youth*" OR TS="puber*" OR TS="young	311,903

	adult*" OR TS="young people*"OR TS="young men" OR TS="young women" OR TS="schoolchild*") **NOT** (TS="child*" OR TS="infant*" OR TS="pediatr*" OR TS="paediatr*")	
Combinatie van concepten geeft dit aantal resultaten		69

Appendix C. Prisma flow diagram