



GOVERNMENT OF THE REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH

EVIDENCE SYNTHESIS ON **ADOLESCENT HEALTH AND HIV IN ZAMBIA**



Acknowledgements

The research team¹ would like to thank the Ministry of Health and the SIDA funded 2gether 4SRHR programme for commissioning and supporting this scoping review synthesizing local evidence on health and HIV among adolescents and young people in Zambia. We express our deepest gratitude to UNICEF for the technical support and availing the financial support as part of the UN joint 2gether 4SRHR programme for which UNFPA, WHO and UNAIDS are participating UN agencies.

We appreciate the peer review and technical support from individuals and committees, including Dr Matildah Kakungu Simpungwe - MOH, Dr Edgar Lungu - UNICEF Zambia, Ms Alice Armstrong – UNICEF ESARO; and various stakeholders who provided input during the national adolescent health research and best practices symposium.

DISCLAIMER: This publication was produced with financial support from the Government of Sweden through the UN Joint programme on SRHR/HIV and SGBV (2gether 4SRHR) 2017 – 2021 and technical support from MOH and UNICEF. Any views and opinions contained in this publication are those of the authors and do not necessarily reflect the views or opinions of UNICEF or the Government of Sweden.

¹ Joseph Mumba Zulu, PhD (Team Lead); Patricia Maritim, MPH & Chama Mulubwa, MPH University of Zambia -School of Public Health

CONTENTS

ACRONYMS	2
EXECUTIVE SUMMARY	3
Background and objectives	3
Methodology	3
Results	4
Recommendations	7
INTRODUCTION	9
Background	9
Purpose and Scope	10
Objectives	11
METHODOLOGY	12
Review design	12
Conceptual framework	12
Scope of the review	13
KEY FINDINGS	18
HIV/AIDS and STIs	18
Sexual and Reproductive Health	30
Sexual and Gender-based Violence	35
Alcohol and substance abuse	38
Non-communicable diseases	41
Adolescents and young people with special needs	44
CONCLUSIONS	52
HIV/AIDS and STIs	52
Sexual and reproductive health	53
Sexual and gender-based Violence	53
Alcohol and substance abuse	54
Non-communicable diseases	54
Adolescents and young people with special needs	55
RECOMMENDATIONS	56
Programmatic recommendations	56
Policy/legal recommendations	57
Research recommendations	58
Emerging areas of focus	58
REFERENCES	59

ACRONYMS

AIDS:	Acquired immunodeficiency syndrome
AYP:	Adolescents and Young People
ART:	Antiretroviral therapy
AYP:	Adolescents and young people
CSE:	Comprehensive sexuality education
GBV:	Gender-based Violence
HIV:	Human-immunodeficiency virus
NCDs:	Non-communicable diseases
PrEP:	Pre-exposure prophylaxis
PWDs:	People with disabilities
SRH:	Sexual and Reproductive Health
SRHR:	Sexual and Reproductive Health Rights
STIs:	Sexually Transmitted Infections
UNICEF:	United Nations International Children's Fund
WASH:	Water, Sanitation and Hygiene
WHO:	World Health Organization
ZDHS:	Zambia Demographic Health Survey

A photograph of four young people (three women and one man) looking at a book together outdoors. They are dressed in white shirts, and the background shows a clear blue sky and a large tree trunk. The image is partially obscured by a white semi-transparent box containing the title.

EXECUTIVE SUMMARY

Background and objectives

According to population projections by the Central Statistics Office, about two thirds of the Zambia population projected for 2020 is below the age of 25. Adolescents and young people aged 10 to 24 years account for a third of the Zambian population in 2020 (CSO, 2013). With a predominantly young population, investment in this age group is therefore central to socioeconomic development of the country. The Government of the Republic of Zambia recognizes this as its development agenda reflects various aspirations for young people

In the health sector, there is wide consensus that investments in adolescent health is central because it brings a triple dividend of benefits - for adolescents now, for their future adult lives, and for the next generation (WHO, 2017). However, for years, the unique health issues associated with adolescence have been little understood or, in some cases, ignored (WHO, 2017). This phenomenon may have contributed to high burden of some diseases and poor health status among adolescents, young people, and in cases of early childbirth and child marriages, the health of children of adolescents and young people

This evidence synthesis was commissioned by Ministry of Health and UNICEF Zambia with aim to identify, map and describe existing evidence relating to adolescent health and well-being in Zambia. This evidence synthesis report highlights potential gaps and provides recommendations for future programmatic action.

Methodology

The report utilized a scoping review approach to synthesize data from multiple sources in the adolescent health sector in Zambia. From a selection of 4984 titles and abstracts, 90 peer reviewed articles were included for review. Fourteen reports and technical briefs were sourced from the grey literature were added to provide additional insights to the findings of the peer reviewed publications that were identified from the online searches

Results

The results of the review are presented in line with the six priority areas outlined in the Adolescent Health Strategy, risk factors, service delivery and intervention/programme outputs, outcomes and impact across the priority areas outlined in the Adolescent Health Strategy 2017-2021.

HIV/AIDS and STIs

Current status: The prevalence of human-immunodeficiency virus (HIV) among adolescents and young people aged 15 to 24 was 3.8%. Among those aged 15-19, the prevalence was 2.6% for girls and 1.2% for boys. This was significant decline in prevalence since 2014 within this age category, from 4.8% and 4.1 among the girls and boys respectively. The prevalence among 20 to 24 year olds was 8.9% in women in contrast to 6.9% in men. There were approximately 26000 new HIV infections among 15-24 year olds with up to three times higher incidence rates among girls and young women. 4.5% of young women aged 15-24 reported having either an STI, genital discharge, sore or ulcer vs 7.5% of men.

Effective interventions: Adolescents taking part in programmes that had adopted rights based approaches in the design and implementation of HIV services had given them an opportunity to be active participants in implementation processes. The introduction of national test and treat policies resulted in an increase in rapid antiretroviral therapy (ART) initiation. The implementation of community based test and treat interventions targeted towards adolescents and young people were significantly associated with increased acceptability of HIV testing and adherence to ART. Further, the introduction of multicomponent interventions combining social support, economic empowerment and parental training delivered through community networks resulted in a reduction in negative community attitudes towards HIV positive people, HIV-related stigma and better nutrition.

Gaps/ challenges: In some cases, sexual reproductive health (SRH) and HIV messages spread were rated as incompatible with prevailing cultural and religious beliefs, adolescents and young people were hesitant to adopt them because they could interfere with the relationships with their families who they felt might withdraw their financial support. Furthermore, sexual and reproductive health rights were not seen as the most essential aspect of service delivery with most of them considering education and economic opportunities to be more pressing needs. Poor collaboration among HIV and community services was felt to be a large impediment to the delivery and access of ART services.

Sexual and Reproductive Health

Status: The proportion of adolescents who became pregnant declined from 34% in 1992 to 29% in 2013-14 and 2018. In 2018, 29% of women aged 20-24 years reported being married by age 18, a slight drop from 31% in the 2014. Sexual and Reproductive Health services and information are provided primarily in schools and health facilities. However, access remains low with fewer than 1 in 5 adolescents accessing HIV testing or contraceptives services. Barriers to accessibility to SRH services and information include Poor knowledge and attitudes among adolescents, negative/judgemental attitudes by providers, lack of confidentiality, as well as strong heteronormative norms and discrimination of non-heterosexual subgroups demotivated service uptake.

Effective Interventions: School based SRH programs such as comprehensive sexuality education (CSE) were reported as effective in improving knowledge and access to SRH services among school going adolescents and young people (AYP). SRH Programmes implemented in the community-based health system setting improved uptake of SRHR services. In addition, school-based programmes in combination with referral to SRH health services, SRH programmes that prioritize engagement and participation of young people as well as community dialogue and support to promote positive social norms on adolescents SRH positively impacted on SRH for adolescents. Interventions that provided economic support to adolescents played a significant role in influencing both educational and sexual decision making among female adolescents. The economic support triggered independence and empowerment, increased assertiveness and autonomy, reduced desire for sexual relationships with boys in exchange for cash and gifts, increased motivation for school, enhanced parental and community support for female adolescents' education and reduced school dropouts.

Gaps/challenges: Concerns regarding the appropriateness of reproductive health messages affected the delivery of SRHR information to adolescents. Barriers to uptake of CSE included limited perceived benefits, unsupportive households and community environments, limited training among teachers or health providers in CSE and cultural and religious beliefs among teachers and parents regarding the use of contraceptives among the learners. Inconsistencies were found in the Zambian policy which could hinder some adolescents from accessing services.

Sexual and Gender based violence

Status: There has been a reduction in the prevalence of sexual and gender based violence (GBV) between 48% in 2013 to 22.2% in 2018 and 17.1% in 2020. The rate of violence among HIV positive AYP is 10.4% with cases being associated with viral load failure. The prevalence of sexual violence was more common for women as compared to men. Perpetrators for sexual violence were mostly current or previous partners.

Effective interventions: Sexual and gender-based violence services included counselling, treatment and support. As is the case for HIV/STI services, providing safe and private spaces for AYP to freely discuss sexual and gender-based violence was vital in addressing GBV. The use of integrated service delivery approaches to address SGBV through programmes such as One Stop Centres was also effective.

Gaps/challenges: Poor, delayed or no action taken to punish perpetrators of GBV discouraged communities from reporting sexual and gender-based violence cases. Limited availability of adolescent friendly sexual violence prevention and screening programs and longer waiting hours at One Stop Centres affected delivery of post-violence care.

Alcohol and substance abuse

Status: Though studies looking at alcohol and substance abuse were scant, survey data showed that 42.2% of adolescents had consumed alcohol and 37.2% had consumed cannabis with men and young people living in the streets being more likely to have consumed both. Approximately 7.0 have smoked cigarettes before. 36.4% of adolescents were 13 years or younger when they had their first drink of alcohol and 42.6% were currently using alcohol with 45.1% experiencing negative consequences.

Effective interventions: None of the studies identified in the review covered interventions to address alcohol and substance abuse within this population.

Non-communicable diseases

Status: There was a paucity of studies dealing with non-communicable diseases among AYPs. In terms of nutrition, studies exploring nutritional status found that while 17% girls aged 10-14 were stunted, those between 15-19 were overweight. Marriage and childbearing was thought to be associated with high BMI. Mental health in relation to AYP was found to be an under researched area.

Effective interventions: Interventions such as the nutritional curriculum & asset building programme which provide content and age specific nutritional educational curriculum and facilitated asset building were found to result in decline in the level of stunting and a modest increase in adolescent nutritional knowledge general but a significant increase when it came to knowledge of anaemia. Interventions used to address mental health issues such as depression among AYP included creative expressing skills, somatic stimulation, meditative practice, and/or cooperative playing, used in combination or in isolation. Psychotherapeutic interventions to reduce depression were more effective when implemented by the nurse, lay counsellors and social workers as compared to other stakeholders such as teachers or parents.

Gaps/ challenges: Although a comprehensive mental health policy is in place, there are numerous gaps in the implementation of mental health services targeting AYP ranging from a lack of spaces to political will to cultural and context sensitivity.

Adolescents and young people with special needs

Status: The review found very limited research or programme implementation data on adolescents with special needs. Nevertheless, 4.4% of children aged 2-17 have a disability with a higher proportion living in urban areas (4.6% vs 4.2%) and among male children (4.5% vs 4.2%). The proportion of young people aged 18—20 who have a disability is 5.8%.

Effective interventions: In correctional facilities, health information was provided in correctional facilities through health educational talks by prison personnel and were mostly focused on HIV/AIDS and syphilis. None of the peer reviewed studies that were identified through the searches reported on the impact of interventions aimed at improving delivery and utilization of health services among adolescents and young people with special needs. However, proposed interventions from the grey literature included; youth committees, peer support groups and boards and community based rehabilitation programmes.

Gaps/challenges: As with the broader Zambian population there appears to be high levels of stigma and prejudice against people with disabilities that has resulted in a profound and widespread denial of rights. The service delivery strategies available are not tailored for AYPs with disabilities.

In the correctional facilities, some of the conditions that adolescents faced included HIV/AIDS, tuberculosis, malaria and sexually transmitted infections, as a result of sexual abuse by adult prisoners or casual sex with girls living in nearby communities. Their ability to access health care was hampered by lack of available and appropriate services due to limited resources in correctional facilities and approved schools.

Limited health screening was conducted which hampered delivery of appropriate services. Even where screening was done, it was often conducted by unqualified prison personnel. Correctional facilities and approved schools often do not have health facilities on site. Issues with correctional facility patient management also contribute to ineffective referral services.

Recommendations

This section provides recommendations for strengthening adolescent health in Zambia. The recommendations are key in informing the implementation on the current Adolescent Health Strategy as well as informing the development of subsequent strategies. The recommendations have been categorized under three thematic areas namely programme, policy/ legal and research.

Programmatic recommendations

1. Schooling serves as a protection for girls against both child marriage and teenage pregnancy as well as HIV. Utilizing girl-child education as a strategy of preventing SRH challenges through advocating for increased educational support including free primary and secondary school education should be considered.
2. It is important for future programmes to focus more on promoting collective action through increased involvement of gatekeepers, especially parents, teachers, health workers and traditional and religious leaders in initiatives to promote mental, nutritional and reproductive health.
3. Continued efforts are needed to expand the reach of youth friendly services and peer support. There is also a need to develop sustainability plans for youth friendly spaces to maintain meaningful youth participation and youth/ adolescent -led activities.
4. Attention should be given to value clarification among teachers, health workers, etc. involved in implementing SRHR interventions in the Adolescent Health Strategy. There is also a need to promote the consistent use of (all possible) pregnancy prevention methods.
5. There is a need to scale up/ expand economic support towards adolescent given the limited economic opportunities in rural Zambia.
6. There is a need to further promote and scale up youth-led activities to enhance programme reach and effectiveness of adolescent health interventions.
7. There is a need for sensitization and awareness raising initiatives through peers, as well as the engagement of parents and community leaders concerning sexual gender-based violence. The creation of youth committees and boards could also help increase adolescent participation in service delivery. There is need to also integrate prevention messages in WASH platforms, social media, churches and schools.

8. Broad-based approaches that challenge the prevailing mindset of people towards, for example, people with disabilities (PWDs) and those that specifically tackle such stigma and abuses the treatment of PWDs in the community and health facilities should form part of **all** strategies moving forward.

Policy/ legal recommendations

1. Tailor existing policies and initiatives that focus on SRHR among adolescents to include strategies targeting adolescents with disabilities, adolescents in correctional institutions, young refugees and young key populations and with specific references to their SRHR and adolescent health in general.
2. Challenges that Zambia faces mean that resourcing and practical implementation of existing laws and policies require continued attention. The major issues that require attention are dissemination, awareness-raising, resourcing and monitoring the implementation of existing policies.
3. Further enhance the addressing of nutritional and mental health issues among adolescents by integrating adolescent nutritional and mental health needs in the Adolescent Health Strategy.
4. Scale up the implementation of the National Test and Treat Policy and consider scaling up access to pre-exposure prophylaxis among key populations.

Research recommendations

1. Investigate the impact and sustainability of economic empowerment interventions in contributing to gender equality among adolescents.
2. Investigate the impact of COVID-19 prevention measures on adolescents' accessibility to adolescent health services and utilize the most successful strategies to expand access to these services in the context of COVID-19.
3. Assess the delivery and impact of services aimed at preventing smoking and drug use or treating drug dependent among adolescents.
4. Examine dietary behaviour among adolescents.
5. Examine impact of interventions aimed at improving delivery and utilization of health services among adolescents and young people with special needs.
6. Determine the burden of mental health related diseases among adolescents, legitimacy of the problem, feasibility of response and support for response.

Emerging areas of focus

1. Blueprint development so strategies can expand access to adolescent health services in the context of COVID-19.
2. Given the current controversy regarding the delivery of CSE among stakeholders, there is need to focus on sustained advocacy by civil society to secure the implementation of CSE at national and provincial level.



INTRODUCTION

Background

Adolescence is a critical period between the ages of 10-19 years [1,2] characterized by distinct cognitive, sexual, social, emotional and physical development [3]. As such, adolescence offers a great opportunity to reach young people with various interventions that can help them to enhance their skills, build healthy habits and prepare for the future. In many countries, adolescents make up about 70% of the population, thus making it an important target group for both developmental and health interventions. In Zambia, adolescents and young people aged 10-24 make up 34.3%¹ of the population and it is expected that this may increase by more than 60% by 2042².

According to the 2018 Zambia Demographic and Health Survey report, the percentage of adolescents who have begun bearing children ranges from 6% among those aged 15 years to 53% among those aged 19 years; one in seven females (15%) aged 15-19 years is married (or in union) compared to only 1% of their male counterparts; 21.5% of married girls aged 15-19 have an unmet need for family planning; HIV prevalence for adolescents and young people aged 15 to 24 years is estimated at 3.8% (5.6% among girls and young women vs 1.8% among boys and young men) [4]. Other problems that AYP face include sexual and gender-based violence, school dropout, mental health issues, substance abuse and non-communicable diseases [5]. By virtue of their age, adverse outcomes to many of these problems tend to affect not only the present health of AYP, but also their personal development and at times future health and health habits.

Other problems that AYP face include sexual and gender-based violence, school dropout, mental health issues, substance abuse and non-communicable diseases.

Evidence shows that the public health needs of AYP are distinct from those of adults and that their access to the much needed services, which could potentially mitigate the negative health outcomes is poorer [6] is, to the best of our knowledge, very scarce, if not absent. It is important to document mechanisms that shape integration process in order to improve health systems' responsiveness towards adolescents' SRHR. This realist evaluation protocol will contribute to this knowledge in Zambia where there is increased attention towards promoting maternal, neonatal and child health as a means of addressing the current high early pregnancy and marriage rates. The protocol will

¹ UNFPA. World Population Dashboard, Zambia. Accessed 25th July 2021.

² Population Facts, 2015, United Nations Department of Economic and Social Affairs.

ascertain: why, how, and under what conditions the integration of SRHR interventions into Zambian community health systems will optimise (or not). To address these public health challenges, the needs of AYP ought to be factored into the development and implementation of national public health programmes. This includes ensuring that existing health systems are transformed into AYP responsive systems that go beyond providing only SRH services to addressing the full range of

AYP's developmental needs [7]. Evidence has shown that neglecting AYP's specific health needs has negative social and health outcomes, such as unwanted pregnancies, early marriages, sexually transmitted infections, poor mental health, substance abuse and sexual violence [8]. Although many studies have been conducted and published on how to address the various aspects of adolescents' well-being in Zambia, this evidence has not yet been consolidated. Consolidated evidence mapping is necessary to identify gaps, inform practice, design, implementation and policy for AYP's health and well-being.

Evidence has shown that neglecting AYP's specific health needs has negative social and health outcomes, such as unwanted pregnancies, early marriages, sexually transmitted infections, poor mental health, substance abuse and sexual violence.

Purpose and Scope

The global standards for quality services for adolescents state that adolescents should be knowledgeable about their own health and aware of where to receive health services, interventions targeted towards them should have the support of the community, health facilities should provide appropriate packages of services tailored to their needs, health care providers should be competent in providing services, health facilities should be welcoming environments, quality services should be provided equitably and without discrimination, health information should be available to inform decision making and adolescents should be actively involved in the processes of providing health services [7]. In order to adhere to these global standards of providing quality services for AYP, Zambia developed the existing Adolescents Health Strategy 2017-2021 [5].

The Adolescent Health Strategy provides an overall framework for the implementation of adolescent health services in Zambia. Its main outcomes are to strengthen the capacity of the health sector to deliver adolescent responsive health services, facilitate the prioritization of health promotion, creating demand for services and creating an enabling environment by strengthening leadership and governance [5]. The key priority areas of interest highlighted in the existing Adolescents Health Strategy 2017-2021 include: 1) Sexual and Reproductive Health (SRH); 2) HIV and AIDS and other sexually transmitted infections (STIs); 3) Gender-based violence (GBV); 4) Non-Communicable Diseases (NCDs); 5) Substance abuse issues; and 6) Problems facing adolescents with special needs. The key principles under the strategy are that adolescent health services ought to be equitable, accessible, acceptable, appropriate and effective [7].

As such, in order to strengthen the implementation of initiatives under the strategy that are aimed at improving the health and well-being of AYP, reviews that catalogue existing evidence, provide an analysis of assorted studies conducted in the field and identify existing gaps are necessary. Reviews are a useful decision support tool that are essential in informing health policy processes and programmatic action as they summarize available knowledge on the effectiveness, implementation and efficiency of different interventions [9–11].

The scope of this synthesis reflects evidence on the priority areas as highlighted in the Adolescents Health Strategy 2017-2021 [5]. In addition to informing the revision of the Adolescents Health Strategy, the findings of this review will generate information that can inform health policy, future process and programmatic action not only in Zambia but also in countries with similar settings. Reviewing and synthesizing evidence on the six key priorities of adolescent well-being may help programme planners, implementers and policy makers to understand the broader context related to AYP's health, isolate areas that have been neglected by current interventions and identify the key areas to prioritize for future interventions including programmes targeting AYP.

The review was guided by three central questions:

- (i) What are the mortality, morbidity and risk factors associated with priority health conditions [5] for AYP in Zambia?
- (ii) What interventions are effective in improving AYP's health outcomes and access to healthcare in Zambia?
- (iii) What are evidence gaps in the improvement of AYP's health outcomes in Zambia?

Objectives

The aim of this review was to identify, map and describe existing evidence relating to adolescent health and well-being in Zambia. In doing so, the review also highlights potential gaps and provides recommendations for future programmatic action. Specific objectives included:

- (i) Reviewing published evidence from Zambia on the health and wellbeing of adolescents and young people focusing on six priority areas of the adolescent health strategy
- (ii) Identification and use a defined criteria of evidence assessment to ensure that the evidence used in the compendium is of high quality and relevant to the context and target group-adolescents and young people.
- (iii) Synthesis of existing evidence in each of the priority areas to produce summaries of critical evidence and gaps including ascertaining the following: epidemiological status, proven cost-effective interventions, gaps in the evidence, barriers and gaps in optimal implementation of cost-effective interventions.
- (iv) Consolidation of the evidence generated into a compendium which will be a repository of evidence to inform subsequent adolescent health strategy and other aspects of programme design.



METHODOLOGY

Review design

The synthesis utilized a scoping review approach which was felt to be the most appropriate to gather as much evidence as possible within the areas of interest and still maintaining a systematic approach in the identification and extraction of the relevant data on the Adolescent Health Sector in Zambia [12].

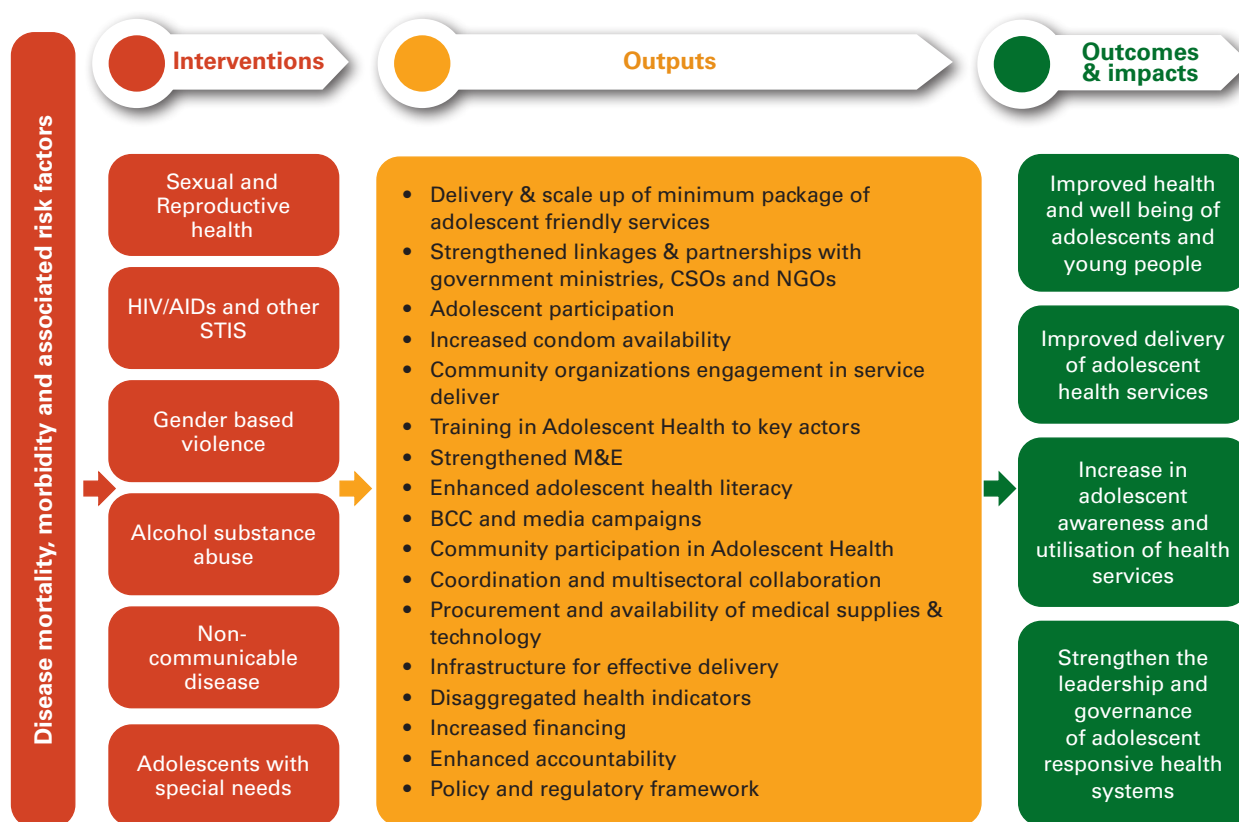
Conceptual framework

The conceptual framework developed for the study was based on the priority areas and the strategic focus of the Adolescent Health Strategy 2017-2021 and the research questions as shown in Figure 1 [5]. The review assessed the current morbidity and mortality associated with these priority areas as well as identification of any risk factors associated with the diseases and conditions. In addition, the review examined effective interventions that have been implemented to prevent and address risk factors and the outputs and outcomes associated with their implementation in the country. Examples of outputs of interest included improved access to services, enhanced health seeking behaviour and behaviour change. Whereas the outcomes and impacts evaluated are those anticipated under the Adolescent Health Strategy of improved service delivery, improved health and well-being of adolescents, increase in awareness and utilization of services and strengthening

leadership and governance of adolescent responsive health systems. As part of the process, the review highlighted accomplishments and gaps so as to produce evidence and recommendations on key areas that could promote the well-being of adolescents and young people in Zambia.

As part of the process, the review highlighted accomplishments and gaps so as to produce evidence and recommendations on key areas that could promote the well-being of adolescents and young people in Zambia.

Figure 1. Conceptual framework guiding the identification, selection and synthesis of articles



Scope of the review

Studies that described the implementation of any intervention, access to services and general experience focusing on six priority areas of adolescent health namely sexual and reproductive health rights (SRHR); HIV/AIDS and other sexual transmitted infections (STIs); gender-based violence (GBV); alcohol and substance abuse; non-communicable diseases (NCDs) (with a focus on nutrition and mental health); and adolescents with special needs and were included in the synthesis [5]. These included interventions delivered through different channels including schools, communities or facility-based interventions. Apart from clinical interventions, the review also included health system strengthening and community-based interventions targeting improvement in adolescent health outcomes. It also collected information on implementation strategies used to deliver the interventions and factors that may have affected the implementation of these interventions. Special attention was to be paid towards studies focusing on key populations.

For the purpose of the review, the population of interest were adolescents and young people (AYP) aged between 10 and 24 in Zambia. The review also collected information on a variety of output and outcomes which are in line to the Adolescent Health Strategy 2017-2021 as shown in Figure 1.

Types of studies included

The review focused on peer reviewed studies, population-based survey reports, government documents, thematic evaluation reports and grey literature. Heterogenous studies utilizing different methodological approaches whether qualitative, quantitative or mixed method studies were included. Studies needed to have been published within the past ten years between 2011-2021, covering the period since the implementation of the first Adolescent Health Strategy 2011-2015. All the studies were published in English and were conducted in Zambia. Multi-country studies which reported data on Zambia but only provided pooled estimates were excluded. Studies on priority areas of focus but not including the target AYP population were also excluded.

Literature Searches

Using a scoping review design informed by Arksey & O'Malley [11], relevant electronic databases were systematically searched between February 1st and 13th 2021 across three databases: PubMed, Embase and Web of Science. To ensure that the searches would be sensitive enough to capture all the relevant literature, a search strategy was developed iteratively. The combination of terms that were used are listed below:

1. Adolescents OR teen OR teenager AND "Sexual and reproductive health" OR SRH OR SRHR AND Zambia
2. Adolescents OR teen OR teenager AND "HIV/AIDS" OR HIV OR "Sexually transmitted infections" OR STI OR STDs AND Zambia
3. Adolescents OR teen OR teenager AND "Gender based violence" OR "Sexual and gender-based violence" OR GBV OR SGBV AND Zambia
4. Adolescents OR teen OR teenager AND Alcohol OR "substance abuse" AND Zambia
5. Adolescents OR teen OR teenager AND "non-communicable disease" OR NCDs OR "Nutrition" OR "Mental health" OR "Self-harm" AND Zambia
6. Adolescents OR teen OR teenager AND Disabilities AND Health AND Zambia
7. "Adolescent friendly health services" OR "youth friendly health services" OR "Safe spaces" AND Zambia.

Data collection, management and synthesis

Selection of studies

The application of the search strategy led to the identification of 4981 results. Due to conceptual overlaps in some of the priority areas, a two-step process for the removal of duplicates was applied. The first was for the removal of duplicates from individual databases which left 3746 titles and the second round, was done after the consolidation of results from the three databases, leaving a total of 2319 studies which were found eligible for title and abstract screening. Out of the 2319 titles, 719 titles were excluded from the review either because they covered areas that were outside the scope of the review (59.3%) or were from outside Zambia (24.8%). After removing titles that did not fit the objectives of the review, the team reviewed a total of 1600 abstracts. Of these, 1427 abstracts were excluded because they did not meet the inclusion criteria. Most of the abstracts

that were excluded either reported outcomes that were not relevant to adolescent health (33%) or were outside the scope of the review (29%). Three additional articles were identified from the reference lists and added to the final list of included studies.

Full text reviews of 177 papers were conducted to identify studies that fit the eligibility criteria and warrant inclusion into the final synthesis. The selection of studies to be included in the review was conducted using Rayyan QCRI Software [13]. The three members of the team independently assessed the studies for their suitability in answering the objectives of the review. Where differences arose in the inclusion of some of the studies, discussions were held to resolve them.

The key priority areas of interest highlighted in the existing Adolescents Health Strategy 2017-2021 include: 1) Sexual and Reproductive Health (SRH); 2) HIV and AIDS and other sexually transmitted infections (STIs); 3) Gender-based violence (GBV); 4) Non-Communicable Diseases (NCDs); 5) Substance abuse issues; and 6) Problems facing adolescents with special needs.

Data extraction

Studies that met the eligibility criteria underwent full text reviews to identify information pertaining to AYP. The results of the search were managed using Endnote and Zotero referencing software and Microsoft Excel. In order to minimize the potential of bias, the reviewers extracted the data independently. Data was extracted using a pre-designed data extraction form. Given the broad scope of the review, the nature of the information to be extracted differed depending on the study focus. However, some of the information that was extracted included: study type, setting, participant characteristics, data collection method used, data analysis, outcomes of the study, study results that were related to the objectives of the review and for interventional studies additional descriptions of the interventions and strategies used.

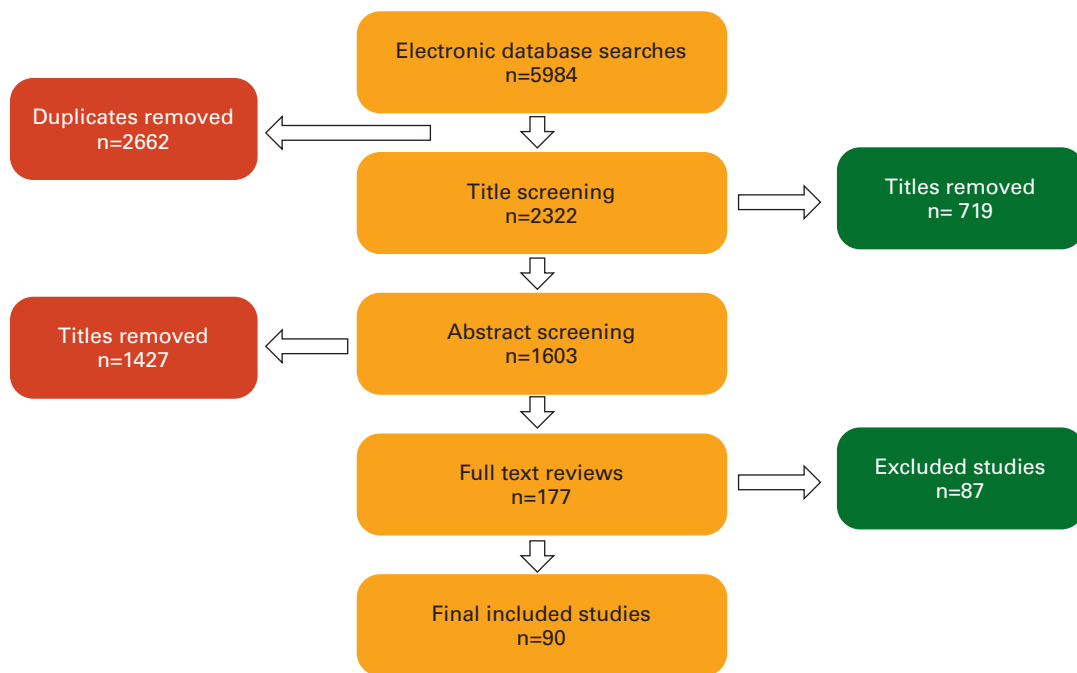
Quality and risk of bias

In order to assess the quality of the studies that were to be included in the study, the team utilized the Mixed Methods Assessment Tool [14]. The tool was deemed the most appropriate for this kind of review as it provides a robust set of criteria that can be used by research teams conducting systematic reviews that include qualitative, quantitative and mixed methods data. The checklist helped in evaluating the validity, credibility, completeness and applicability of the information presented in the different data sources as well as identifying any potential risk of bias in selection of the final sources. The quality of the studies and the evidence which they reported was classified as low-, moderate- or high-quality based on the tool's assessment criteria. The team conducted the quality assessments independently and then reviewed findings jointly. The final studies to be included in the review all had to meet the same quality standards and any disagreements between the team members were settled through team discussions.

Overall of description of included studies

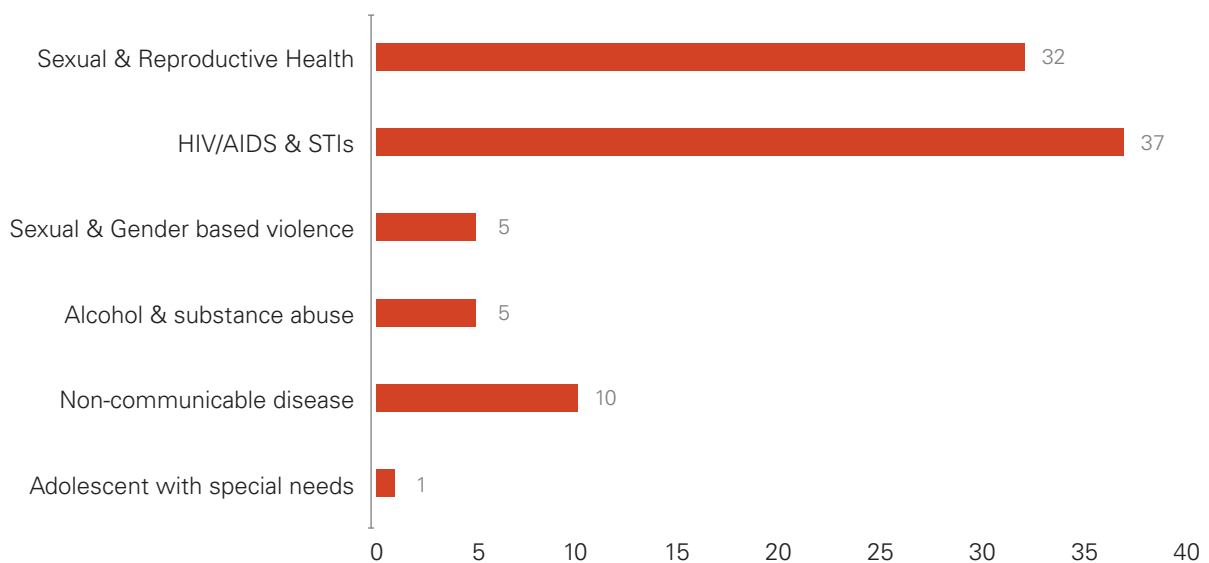
From the initial 4984 titles and abstracts that were screened to identify articles that would be eligible for inclusion in the synthesis using the PRISMA guidelines [15] and after full text reviews and quality assessments, a total of 90 articles were included in the review (Figure 2).

Figure 2. Summary of selected studies



Based on the conceptual framework described in the preceding section, the studies were grouped into the six main thematic areas. Most of the studies that were included focused on Sexual Reproductive Health or HIV/AIDS and STIs as shown in Figure 3.

Figure 3. Number of studies included by thematic area



Grey literature

In terms of additional data sources, fourteen reports and technical briefs were identified from grey literature which provided additional insights to the findings of the peer reviewed publications that were identified from the online searches. However, the quality and strength of the evidence that was generated from these reports was not always adequate and they were included as points of comparison or where they reported on potential feasible interventions that could be of interest.

Data management and synthesis

A narrative synthesis approach was used to examine and report on any relationships between the qualitative and quantitative data [16]. The conceptual framework described in the preceding section (Figure 1) was used to guide the analysis of the findings from the included studies. During the preliminary synthesis the team identified, listed, tabulated and counted relevant results and transformed the data into textual descriptions of various themes. This informed the next step of the synthesis aimed at exploring any relationships that may exist within or across the existing studies in relation to the effectiveness of interventions, factors that may explain differences in the effect sizes and factors that may have facilitated or hampered the implementation of a given intervention. The findings of individual studies were analysed and comparisons made between different studies in terms of variability in; outcomes, study designs and study populations, interventions and settings [16].

Appraisal of confidence in the review findings

Alongside conducting quality appraisals to ensure that the studies included used rigorous methodological approaches, the study also assessed the trustworthiness of the evidence generated by the synthesis. In order to do this, the Grading of Recommendations, Assessments, Development and Evaluation (GRADE) system of rating the quality of evidence and strength of recommendations in systematic reviews was utilized [17]. Ratings of the quality of evidence were based on an assessment of methodological limitations, imprecisions, inconsistencies of results, indirectness of evidence and likelihood of publication bias. Final rankings for quality were categorized as high, moderate, low or very low with justifications for this rankings [17]. The development of the review protocol and the reporting of its findings was done according to the guidance provided by the preferred reporting items for systematic reviews and meta-analyses protocols (PRISMA-P) guidelines [15].

This informed the next step of the synthesis aimed at exploring any relationships that may exist within or across the existing studies in relation to the effectiveness of interventions, factors that may explain differences in the effect sizes and factors that may have facilitated or hampered the implementation of a given intervention.

KEY FINDINGS



HIV/AIDS and STIs

Overall status of available evidence

In general, available evidence shows that there has been a decline in the prevalence of HIV/AIDS among adolescents and young people over time though HIV rates are still high in key populations such as men who have sex with men. The prevalence of sexually transmitted infections is reported to be higher among adolescent and young men compared to women. Though adolescent friendly health corners have been shown to be appropriate in addressing the concerns of AYP especially those who are HIV positive, they have limited reach as they are not found throughout the country. Navigating disclosure is still a major concern for many AYP and their parents or caregivers. Peer support, having supportive family members and healthcare providers have been identified as facilitators to the disclosure process as well as adherence and retention on treatment. Nevertheless, limited research has been conducted to explore viral suppression within the HIV continuum of care. Interventions associated with scale up of test and treat strategies especially through community-based structures have been found to result in better HIV outcomes for the AYP, such as higher levels of acceptability for HIV testing and knowledge of HIV status as well as better coverage of HIV services.

Characteristics of studies included in the analysis

There was a total of 37 studies dealing with HIV/AIDS and STIs that were considered eligible for inclusion in the synthesis. Most of the studies were quantitative (n=18) and qualitative (n=15) with very few mixed methods studies (n=3). The studies utilized both primary and secondary data collection approaches ranging from cross sectional surveys, longitudinal studies to ethnographic assessments and participatory workshops involving AYP. The grey literature included discussed various HIV related issues ranging from factors affecting access of HIV services among young people including key populations [18,19], youth with disabilities [20], HIV prevalence risk and vulnerabilities [21,22] and increasing uptake of HIV interventions such as pre-exposure prophylaxis (PrEP) [23].

Morbidity, prevalence and risk factors

HIV/AIDS: According to the 2018 Zambia Demographic and Health Survey, the overall prevalence of HIV among 15- to 24-year-olds was 3.8% [22]. Among 15- to 19-year-olds it was 1.9%, with women at 2.6% compared to 1.2% in men. Whereas it was 6.1% in those aged 20-24, 8.9% in women and 6.9% in men [22]. In women aged 15-24 HIV prevalence rates were higher among those who were divorced, separated or widowed (13.4%), never married but had had sex before (7.7%), had more than 2 sexual partners (19.2%), used a condom during the last sexual encounter (13.3%), have 2 or more non-marital non-cohabiting partners (21.1%) living in urban areas (7.5%), living in Copperbelt (9.1%), attained secondary education (6.2%) and in the fourth wealth quintile (8.8%). In men the highest rates were among those who were: divorced, separated or widowed (13.9%), married (5.2%), living in urban areas (5.3%), Copperbelt (5.6%) and Lusaka (5.3%), tertiary education or higher (4.4%) and in the fourth wealth quintile (5.6%) [22].

A geospatial analysis exploring changes in HIV prevalence vulnerabilities and risks of HIV among adolescents, found a statistically significant decline in the prevalence of HIV in women aged 15-19 years from 4.8% in 2013/2014 to 2.6% in 2018 [21] as well as in 15-19 year old males from 4.1% to 2.1% within the same time frame [21].

The prevalence of HIV among the key populations was higher than the general population. While there was a similar jump in prevalence between age groups for all females (over a 100% increase in both cases), it was more pronounced for men having sex with men (MSM) than for other males. In 2013, the HIV prevalence amongst MSM was estimated to be 20%, almost double the national average. A study by National AIDS Council in 2014, showed that HIV prevalence in lesbian and bisexual women was 23.6% [24]. The HIV prevalence among female sex workers (FSWs) reached as high as 53.6%. Prevalence rates in 2014 for all adolescent girls (15–19 years) and young women (20–24 years) were 4.8% and 11.2% respectively [24]. The Zambia Prisons Service Report on HIV/AIDS, conducted in 2015 showed that 20.5% tested positive prior to incarceration and that the mass prison population screening showed a prevalence rate of 27.4%.

The survey also found that 42.6% of female adolescent and young people aged 15-24 had comprehensive knowledge of HIV compared to 40.6% in men [22]. Furthermore, the percentage of 15-24 year old people who understood all three modes through which mother to child transmission of HIV occurs was 54.9% [22]. The proportion of 15-24-year-old women who had two or more partners was 1.7% compared to 10.6% in men. There was slight difference in proportion of those with two or more partners who used a condom during their last sexual encounter i.e., 39.4% in women and 40.6% in men [22]. The majority of AYP had knowledge about where to get an HIV test; however, 24% of women aged 15-24 and 38.5% of men had never taken an HIV test [22]. 77.4% of pregnant women aged 15-24 had received a HIV test during antenatal care visit and 89% of women had disclosed the results from their recent test compared to 78.8% of men. Knowledge of self-testing for HIV was low with only 14.1% having heard of such kits.

Knowledge of self-testing for HIV was low with only 14.1% having heard of such kits.

Chanda-Kapata et al. estimated that the prevalence of HIV was higher among female adolescents, urban residents, divorced teenagers and unemployed teenagers [25]sex, setting, educational level, marital and socioeconomic status were associated with being HIV positive.\nMETHODS: A cross sectional population based survey of the prevalence of HIV among teenagers aged 15-18 years old who were also participants in a national Tuberculosis (TB. According to Mee et al., there was

a correlation between being in school, age and lower prevalence of HIV among young women [26]. Further, Tyler et al.'s study on HIV risk among street youth found that youth without a home to return to or those who were living with a parent or guardian who misused drugs were more likely to be HIV positive [27]. Qualitative studies exploring risk factors established that poverty, unemployment and transactional sex increased the risk of HIV infection [30]. The 2018 ZDHS also found that 2% of women aged 15-19 who had sex in the previous 12 months had done so with a man 10 or more years older than them [22].

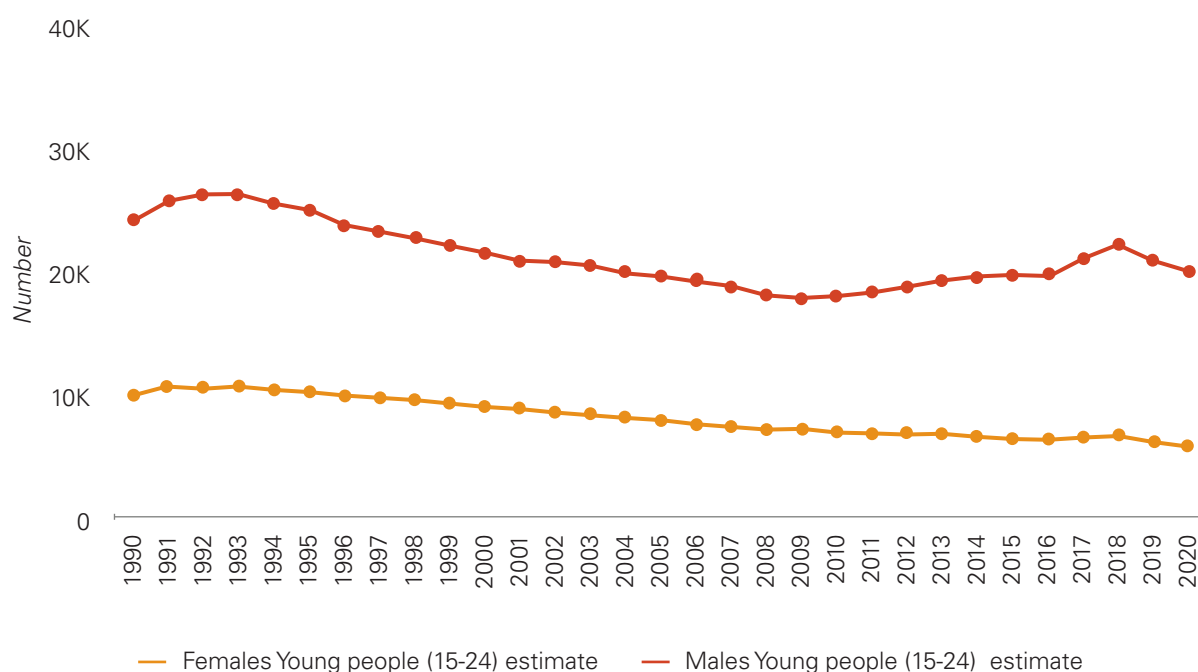
There was slight improvement in comprehensive knowledge of HIV among girls/ women aged 15-24 compared to a decrease in the comprehensive knowledge among men in the same age group between 2013/2014 and 2018.

Figure 4. Changes in HIV prevalence among 15-24-year-olds by sex



There are an estimated 26000 new HIV infections among young people aged 15-24 and 2600 HIV related deaths³.

³ Data courtesy of AIDSinfo

Figure 5. New HIV infections disaggregated by sex

Sexually transmitted infections: According to the 2018 Zambia Demographic and Health Survey, the proportion of adolescent girls and young women aged 15-24 who reported having either an STI, genital discharge, sores or ulcers was 4.5% compared to 7.5% in men [22]. Whereas the 2020 Ministry of Health and National HIV/AIDS/STI/TB Council, report showed that self-reported occurrence of STIs was 3.6% among 15 to 19-year-old females compared to 4.8% among males [22]. Solomon et al. found the prevalence of active syphilis among this group to be 2.4% and co-infection with HIV at 0.5% [28]. A study conducted among school going girls found 4% of them had *Herpes simplex* antibodies with an overall prevalence of *Herpes simplex* being 5.5% [29]. A total of 11.7% of the young women in the study had *Trichomonas vaginalis* infection [29]. Moreover, girls who used soap all the time were less likely to have trichomoniasis, with the association being significant [29]. In 2014, among Female Sex Workers, the prevalence for syphilis was 32.8%. Comparable rates in 2014 for all adolescent girls (15–19 years) and young women (20–24 years) were 4.9% and 9.8% for syphilis [24].

Service delivery and utilization

Acceptability: The availability of youth friendly services, youth clubs and peer educators at health facilities and HIV clinics provided safe spaces for the adolescents and young people to openly discuss the issues they faced with little discrimination and also gave them the opportunity to develop a deep understanding of their needs and how to utilize existing services [30–32] yet little is known about their experiences in a social context. Such knowledge could enable HIV programs to better respond to their needs. This qualitative study examined the experiences of adolescents living with HIV in Kitwe, Kalomo and Lusaka in Zambia. In-depth interviews were conducted with adolescents aged 10-19 living with HIV (n = 58). However, adolescent friendly services were not

widespread and as such AYP could not always get access to these services [30,32] yet little is known about their experiences in a social context. Such knowledge could enable HIV programs to better respond to their needs. This qualitative study examined the experiences of adolescents living with HIV in Kitwe, Kalomo and Lusaka in Zambia. In-depth interviews were conducted with adolescents aged 10-19 living with HIV (n = 58). They were said to face high levels of discrimination when going to access services within health facilities from health care providers who would either deny them services or breach their confidentiality by disclosing private information thus reducing the level of trust that they have in the existing health care systems [18].

Appropriateness: For school going adolescents having to go to the clinic for routine check-ups or to collect their medication was felt to be disruptive to their regular schedules as most health facilities did not have flexible operating hours that fit into school hours [30,33,34] yet little is known about their experiences in a social context. Such knowledge could enable HIV programs to better respond to their needs. This qualitative study examined the experiences of adolescents living with HIV in Kitwe, Kalomo and Lusaka in Zambia. In-depth interviews were conducted with adolescents aged 10-19 living with HIV (n = 58). Furthermore, since they were often accompanied by their parents or guardians when accessing health care, the adolescents did not feel as though they could

openly talk about their SRH needs [31] age-appropriate support regarding sexuality, relationships and transitioning to adulthood. The aims of this study were to explore and document the informational, psychosocial, sexual and reproductive health (SRH). For many the perception that they had acquired the disease sexually carried stigma which reduced their comfort in being in health facility settings over long periods of time [33]. For AYP, poor access to comprehensive sexuality education and health care information as well as age of consent concerns also makes it difficult for them to access services such as HIV testing [18]. Health care providers were also inadequately equipped to provide medical assistance to young key populations due to limited knowledge and skills needed to identify their unique health needs [35].

For many the perception that they had acquired the disease sexually carried stigma which reduced their comfort in being in health facility settings over long periods of time.

Accessibility: An analysis of the average HIV knowledge score among adolescents was 4.05 [36]. Tyler et al.'s study on youth living on the streets found that female youths were more likely to have accurate HIV knowledge compared to male youths [27]. In examining the adolescents' access to information, various sources were identified as being vital sources of HIV and SRH information including schools, community events, non-governmental organizations and friends [31] age-appropriate support regarding sexuality, relationships and transitioning to adulthood. The aims of this study were to explore and document the informational, psychosocial, sexual and reproductive health (SRH). However, when AYP sought additional information and clarification adults would sometimes refuse to provide it to them. This was made worse by the fact that friends and peers from schools would provide inaccurate information and misinformation and there were clear difficulties for AYP in discussing HIV/SRH issues within family settings [31,37] age-appropriate support regarding sexuality, relationships and transitioning to adulthood. The aims of this study were to explore and document the informational, psychosocial, sexual and reproductive health (SRH). Inadequate implementation of comprehensive sexuality education programmes in schools limited the amount of HIV information that adolescents could receive [37]. There was limited reach of youth clubs, safe spaces and schools where poor participation by the adolescents and young

people was reported [37]. In a qualitative study exploring knowledge of SRH and HIV services in two districts in Zambia, it was found that that young people seemed to be well informed about the transmission and prevention of HIV, yet there were still misconceptions about modes of disease transmission with responses such as mosquito bites or sharing utensils as well as a poor understanding of mother to child transmission [19]. Among HIV positive adolescents, some did not fully understand the impact of not adhering to their treatment schedules [19]. In one of the reports, limited access to HIV prevention awareness campaigns was associated with low perception of risk among adolescent and young people [23].

Availability: Services that are tailored fit key populations are often supported by non-governmental organizations whose support is funding dependent, meaning that continuity of services is not always assured especially when the organizations' funding is inconsistent [35]. For young key populations, HIV services do not include the provision of commodities, such as lubricants, dental dams, finger coats and access to PrEP as they are not tailored to these populations [18]. There was limited availability of adolescent friendly youth spaces for the general population [37].

Quality: During visits to health facilities long waiting times and large numbers of patients being attended to meant that health care providers were not always able to have adequate time to discuss adolescents' concerns, especially in rural mobile clinics [31]age-appropriate support regarding sexuality, relationships and transitioning to adulthood. The aims of this study were to explore and document the informational, psychosocial, sexual and reproductive health (SRH. Young people expressed a desire to either be prioritized or to have services that were separated from older adults especially as the environment in antiretroviral therapy (ART) clinics was perceived as being intimidating [31,34]age-appropriate support regarding sexuality, relationships and transitioning to adulthood. The aims of this study were to explore and document the informational, psychosocial, sexual and reproductive health (SRH. Negative attitudes from health-care providers also affected the experiences of adolescents' health seeking behaviour [34]whilst infection rates are falling and people are living longer due to antiretroviral therapy, adolescents and young people remain disproportionately affected. Infection rates and AIDS-related deaths continue to increase in these age groups in some areas globally. This has been primarily attributed to structural barriers including HIV-services not being youth friendly with opening hours conflicting with school time, fears around unintended disclosure and confidentiality, and the attitudes of healthcare professionals-but research targeting these specific age groups remains limited. Early mHealth (i.e., the use of mobile and wireless devices to assist in achieving health objectives.

HIV/AIDs continuum of care

HIV testing, diagnosis and linkage to care

HIV testing among young women and men increased from 23% and 13% in 2007 to 72% and 54% in 2018 respectively [22]. Being female, being older, having a secondary level education or higher, higher wealth indexes, age of sexual debut, having one sexual partner, being in a union, number of sexual partners having a suspected STI, having heard of AIDs before and knowing a place where one could get a test were significantly associated with being tested [36]. Furthermore, a larger percentage of adolescents living in urban areas (44.6%) were more likely to have been tested



compared to those living in rural areas (39.5%) [36]. Among adolescents who had had sexual intercourse age, sex, marital status, education, age of sexual debut and HIV knowledge were significantly associated with the uptake of HIV testing [36]. In contrast, Chanda-Kapata et al. found that 40% of AYP across the country declined a HIV test when presented with the choice [25].

Exposure to media sources resulted in an increase in HIV testing among both male and female youth [38]. Media exposure was significantly associated with higher HIV testing rates among female adolescents between the early to mid-2000s, yet adolescents who had high media exposure in the early 2000s were less likely to test 10 years later [38]. Religion, residence, age and age at sexual debut were associated with HIV testing in 2000 and 10 years later [38]. Despite being positively associated with testing at the onset, condom use was negatively associated with testing in 2010 [38]. Youth with multiple sexual partners were more likely to test for HIV [38].

HIV Sero-status Disclosure

There is wide consensus in literature discourse that HIV sero-status disclosure has multiple benefits including treatment adherence, retention in care and overall positive living. Perinatally infected AYP were usually told about their status when they were around the age of 10-14, often by a parent or guardian, and this was sometimes accompanied by feelings of anger and blame [39]. As a result of subsequent support, they were able to accept their status and develop their self-confidence [39]. Reasons provided by caregivers as being motivations for disclosing the status of adolescents were a response to questions as to why they were taking medication yet they were not unwell and

how long they needed to take the medication, poor adherence to treatment, advice from health care professionals that disclosure would promote their self-efficacy and the ensuing discussions could be seen as way of promoting trust with adolescents and facilitating the adoption of safe sexual behaviour [40]. Questions raised by adolescents and young people also arose from the health education that they had received either at school or within health facilities [40]. Parents who experienced difficulties in disclosing their adolescents' HIV status would request for support from health facility staff [40]. Caregivers also identified HIV counsellors with negative attitudes were a barrier to disclosure [40].

Issues related to disclosure of one's HIV status were commonly brought up. Some of the adolescents did not have a say over how their status was disclosed and this was felt to be a breach of their confidentiality [30,33]. Even though the adolescents felt that family was central to their well-being and navigating their illness, they felt limited control over the disclosure of their status with families being over protective of their status and having control over their disclosure [30,41].

Among adolescent girls and young women, disclosure of their HIV status to their sexual partners/boyfriends was a cause of concern due to the fear of being left with most opting to wait until their relationships were serious before they disclosed [19,19]. Unintentional disclosure was common and when it occurred, it had adverse social effects, such as clouded relationships, bullying and the social risks associated with being seen taking ART [39,42]. Other barriers that affected the ease with which parents, caregivers and relatives could be able to disclose their status was failure of family members to come to terms with their own HIV status, the young age of adolescents and the absence of age appropriate communication materials that could be used to facilitate the disclosure process [31,40,43]. This was especially critical in cases where parents and guardians were afraid that their children would be psychologically traumatized [40]. Some of the caregivers were afraid that they would be blamed for their children's HIV status and that they may not have adequate disclosure skills [40]. Furthermore, disclosure in schools to peers was considered rare [43]. In one of the reports, adolescents stated that it was easier to disclose their status to their close families with greater difficulties experienced in disclosing to friends and peers as they were afraid that their privacy and confidentiality would be breached [19].

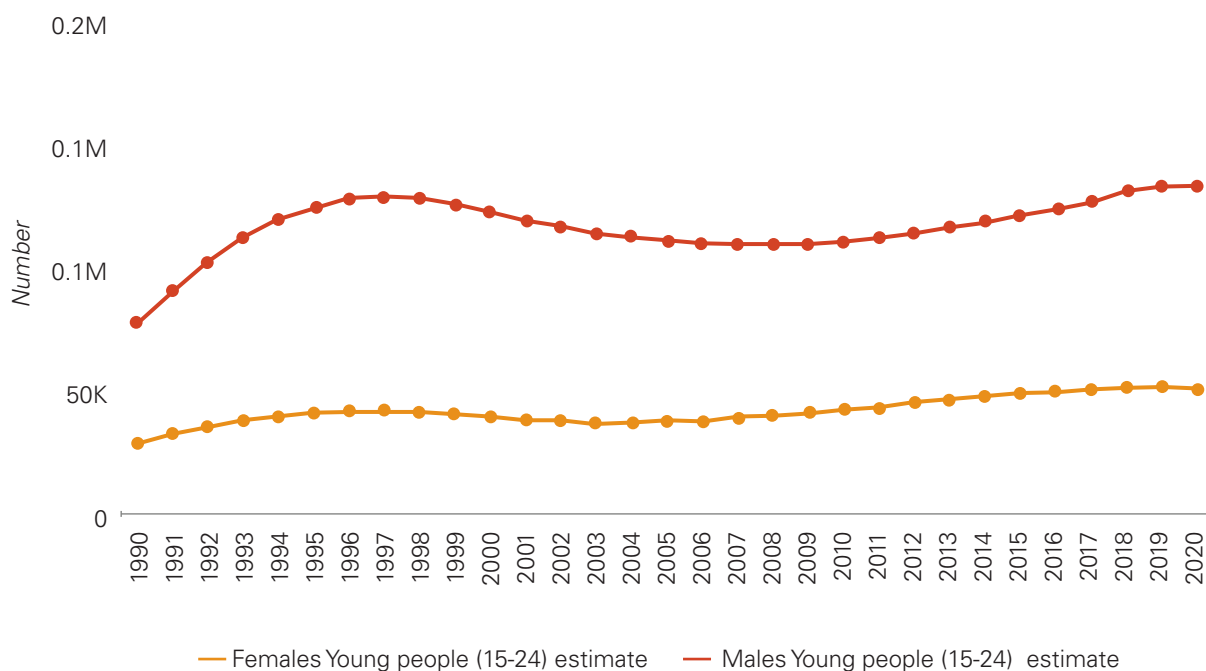
Among adolescent girls and young women, disclosure of their HIV status to their partners was a cause of concern due to the fear that the relationship would end, with most opting to wait until their relationships were deemed serious before they disclosed.

Initiation and Adherence to Antiretroviral Therapy and retention in care

It is estimated that there are 190000 young people aged 15-24 living with HIV in Zambia⁴. Adherence to treatment schedules is critical to viral suppression and the realization of the treatment as prevention strategy goals. For AYP, adhering to their treatment was seen as means through which their bodies could continue to look healthy and they could hide their HIV status as they could be perceived as healthy [42]. Yet even then the medication was a daily reminder of their illness [39,42].

⁴ Data courtesy of AIDSInfo.

Figure 6. Young people aged 15-24 living with HIV disaggregated by sex



In studies that utilized qualitative approaches to explore factors that encourage adolescents and young people to adhere to their treatment support from family, friends and relatives was perceived as a key enabler. They would provide verbal reminders, guidance and encouragement when adolescents and young people were experiencing side effects [30,31,39]. This support was especially valuable to younger adolescents as it enabled them to navigate the initial difficulties associated with understanding the disease and the need for treatment [30]. However, families could also be an impediment especially if they delayed in disclosing the adolescent’s status, did not openly discuss issues related to their condition or shared inaccurate information [31]. Key determinants for retention in care were support and encouragement from family and friends, acceptance of their status, perceived confidence in the effectiveness of ART and knowledge of ART [32,44]. HIV educational resources, programmes and social services within communities including psychosocial support, household economic strengthening, birth registration, skills training, food/nutrition support, community HIV testing, health education, door to door testing, home visitation for adherence support and voluntary male circumcision were also ranked as being important in supporting adolescent retention in care [32].

Various strategies were reported as being helpful in concealing their medication from schoolmates, family or friends as a way of balancing between adhering to treatment and maintaining their HIV status confidentiality including; 1) discarding the medication packaging; 2) stuffing the medicine bottles in tissue or fabric to muffle the sound; and 3) keeping medication in their bags which were within close reach [42]. Adolescents also struggled to take their medication at the right time or find private areas where they could take the drugs especially if they were at school [44]. In one of the studies there was a sentiment that an adolescent’s status should remain within the family and this was thought to impact adherence [45].

Mesic et al. examined the levels of adherence among adolescent and found that 81.8% of them were adhering to treatment [32]. 15.9% had forgotten to take medications and 5.9% had missed two or three ART doses within the past week [32]. Additionally, 46% of adolescents had missed at least one ART visit in the past three months [32]. A higher proportion of female adolescents were reported as missing their appointments compared to males [32]. The most common reasons provided for missing appointments were family commitments, forgetting the appointment and lack of transport [32,44]. In comparison, Denison et al. found that 22% of adolescents reported forgetting to take their medication for gap of 48 hours or more [46] which was slightly lower than the 28.3% reported in Okawa et al.'s study [44].

Denison et al. also found that factors significantly associated with incomplete adherence were being male, being out of school, being on ART for 3-6 years, having people at home not knowing the adolescent's HIV status and alcohol use [46]. Intrapersonal factors found to affect the extent to which AYP could adhere to their treatment and be retained in care were lack of adequate nutrition, fear of being seen at the HIV clinics and poor socioeconomic status [32,45]. Other challenges included facility level operational barriers such as long waiting times and unfavourable operating hours, fear of inadvertent disclosure and negative attitudes affected their treatment seeking behaviour including initiation to care [32].

Factors affecting retention in care were adolescent discomfort in discussing HIV with healthcare providers, side effects of the medication and feeling that they did not need to take medication anymore because their health had improved [32]. Social and educational obligations also affected the adherence and retention in care. Though transitioning to self-management was reported among older adolescents, some parents and guardians were reluctant to let young people to take charge of their medication schedules [45]. Adolescents on second line treatment were more likely to miss their drug for 48 hours or more within the last 3 months [47]. Factors associated with switching regimens were receiving treatment in a hospital and starting treatment at an older age [47].

Viral suppression

There were very few studies that reported on viral suppression and it was usually in relation to delays in receiving viral load testing results [34]. According to Miti et al., the prevalence of HIV drug resistance was 76.6% among youth on first line treatment and 69.2% for those on second line treatment [48].

Experiences of adolescents and young people living with HIV

Various studies explored the experiences of adolescents and young people living with HIV. Knowledge of their status was thought to increase their resilience in navigating difficult situations associated with the disease [30]. This was evident in their ability to navigate aspects, such as monitoring and adhering to their medication regimens, caring for their siblings and the increased responsibilities associated the transition towards adulthood [30]. Additionally, their favourable dispositions were associated with their perceived future aspirations, such as having spouses and

children or building their careers [30]. Stigma and discrimination were recurring themes across most of the studies. In some instances, adolescents and young people had internalized stigma expressing shyness and shame when it came to their status [30,33,34,49]. Stigma experienced in community and school settings was felt to have affected their quality of life and was a cause for absenteeism in schools [30]. Okawa et al. found that 12.6% of adolescents had experienced stigma as a result of their HIV status [44]. However, differences in HIV status between older HIV positive adolescents and their younger HIV negative siblings as a result of enhanced test and treat strategies and shifts in ART availability, was a cause of sadness and loneliness which they had come to accept [39].

Suggestions to combat stigma included ongoing sensitisation through the media, through health talks and the application of different engagement strategies involving parents, community elders and youth peers [49], with suggestions that messages should be focused on the importance of testing, uptake of ART and prevention strategies [31]. Peer support through youth clubs and outside peer groups as well as peer support groups was thought to be critical in getting psychosocial support needed to survive as they provided an opportunity to share their experiences and coping strategies [30]. Nevertheless, there were different views on the level of support from peers as there were some adolescents who felt less connected and isolated. In addition, these peer support groups did not include the participation of adolescents and young people with disabilities [20].

Intervention/programme outputs, outcomes and impact

Adolescent participation: Adolescents taking part in programmes that had adopted rights based approaches in the design and implementation of HIV services felt that such programmes had given them an opportunity to be active participants in implementation processes [50]. Interactive strategies used to disseminate information through drama performance and youth friendly spaces

were considered engaging and effective in gaining new knowledge and information [50]. The participatory nature of these activities was seen as a valuable opportunity for adolescents and young people to develop their voices and share their opinions and thoughts [50]. In one case, the use of human centred design approaches in generating a media and awareness raising campaigns increased the reach of key messages increasing awareness and uptake of PrEP services integrated into other HIV service packages, though this was met with some community resistance [23].

However, in cases where the messages spread under such programmes were incompatible with prevailing cultural and religious beliefs, adolescents and young people were hesitant to adopt them because they could interfere with the relationships with their families who they

Adolescents taking part in programmes that had adopted rights based approaches in the design and implementation of HIV services felt that such programmes had given them an opportunity to be active participants in implementation processes.

felt might withdraw their financial support [50]. Furthermore, rights were not seen as the most essential aspect of service delivery with most of them considering education and economic opportunities to be more pressing needs. In one case they wanted access to livelihood activities and skills training which were available to adults [31]. Also, it was felt that more was needed to be done to ensure that there was ongoing dialogue with the young people and programmes so as to incorporate adolescent led priorities.

Policy and regulatory framework: The introduction of national test and treat policies resulted in an increase in rapid ART initiation from 37.4% to 53.7% within a year but the difference was not statistically significant [51].

Community based adolescent health services: According to Shanaube et al., the implementation of community based test and treat interventions targeted towards adolescents and young people were significantly associated with increased acceptability of HIV testing [52]. Acceptability of testing in such settings also increased with age [52]. In addition, coverage of ART services through service delivery by community based volunteers, rose from 61.3% to 78.7% after the introduction of the community based intervention packages with a 14% increase for boys and 26% in girls [52]. These interventions also increased the rate at which adolescents and young people were linked to care and initiated on treatment especially among those aged 10-14 [52]. Furthermore, community based distributors were found to be an effective delivery channel for HIV self-testing kits with 21.6% in first time testers with 58.8% of used kits returned [53].

Increased adolescent awareness and utilisation of health services: In a study where community based test and treat interventions were introduced, the proportion of adolescents who knew their HIV status rose from 31.4% to 88.3% [52]. An increase in knowledge of one's status also increased across all sexes and age groups [52]. The prevalence of HIV was found to be 1.5% in boys and 2.2% in girls [52]. Mobile health (mHealth) approaches were considered as an acceptable avenue through which adolescent patients could easily access information and ask questions to their peers and health care providers and get reminders of appointments, ultimately facilitating adherence and retention on treatment as well as improving the ease with which they could get the results from their viral load tests [34]. However, lack of privacy and confidentiality were listed as the largest impediments to the utilisation of mHealth services [34].

Improved health and well-being of adolescents and young people: Adolescent and young people felt that the inclusion of economic empowerment interventions alongside behaviour change interventions could facilitate the reduction in HIV infection [49]. The introduction of multicomponent interventions combining social support, economic empowerment and parental training delivered through community networks resulted in a reduction in negative community attitudes towards HIV positive people, HIV-related stigma and better nutrition [54].

Community organizations engagement in service delivery: Poor collaboration among HIV and community services was felt to be a large impediment to the delivery and access of ART services [32].



Sexual and Reproductive Health

Overall status of available evidence

Overall, evidence from these studies seems to suggest that adolescents still face a high burden of SRHR challenges including teenage pregnancies, early marriage and sexually transmitted infections. Despite these challenges, access to age-appropriate comprehensive sexuality education (CSE) and contraceptives is still exceptionally low. Some effective interventions in the past include interventions that are holistic in nature and aim to reach adolescents through all the components of the community-based health systems (schools, communities and health facilities). These interventions prioritized engagement and participation, not only of adolescents but also the community and addressed physical, mental and economical needs of AYP.

Characteristics of studies included in the analysis

Out of 49 relevant abstracts, 32 articles met the criteria for inclusion in the review [55–66]. Seventeen studies were excluded because they did not report the outcomes of interest for this review [67]. Of the 32 included articles, 10 were multi-country studies involving African countries and 22 were Zambia specific articles. By study design, 4 were RCTs; 7 were either cross sectional or longitudinal studies; and 12 were qualitative and 9 employed mixed methods design. Most of the articles reported findings from rural or peri-urban areas and only a few studies reported on studies conducted in urban areas. There were 6 articles that were nested in one study whose goal was to reduce adolescent pregnancies and early marriages through empowering girls to continue going to school [68].

Overall, evidence from these studies seems to suggest that adolescents still face a high burden of SRHR challenges including teenage pregnancies, child marriages and sexually transmitted infections

Prevalence of Sexual and Reproductive Health related diseases and risk factors

All the studies that reported on early/unwanted pregnancies reported high pregnancy rates but limited use of services that could help to mitigate this issue [58,60–63]. A multi-country study to evaluate pregnancy and early motherhood across three countries listed several risk factors and these include education attainment, age at first sex, household wealth, family structure and exposure to media, limited economic access, bride wealth and gender inequalities [69]. This list was supported by other articles that reported on early pregnancies [59,70–72].

The Zambia Demographic and Health Survey data showed that teenage childbearing declined from 34% in 1992 to 29% in 2013-14 and 2018 [21]. The ZDHS further showed that 9% of women aged 25 to 49 years were first married by the age of 15, as compared with less than 1% of men. 15% of women aged 15-19 were reported to be in a union [22,73]. In 2018, 29% of women aged 20-24 years were reported being married by age 18, a slight drop from 31% in the 2014 Demographic and Health Survey. Similar to early pregnancies, drivers of child marriage included pregnancy, poverty, limited economic opportunities for AYP and bride wealth [60]. As such, some studies have highlighted the need to tackle inequitable gender norms that exacerbate negative health outcomes in AYP's SRH. In another study conducted by Yang et al., among college students, sexual violence and sexual behaviours were associated with multiple behavioural health risks [69]. In all the studies, early pregnancies and child marriages were associated with poor health outcomes.

It is important however to note that the highest burden of SRHR related negative outcomes, such as teenage pregnancies and STIs were reported in Southern, North-Western, Central, Eastern and Luapula provinces of Zambia [21]. More research is needed to understand context specific drivers of teenage pregnancies in these provinces and how available SRHR interventions can best be tailored to alleviate the negative outcomes.

Service delivery and utilization

Accessibility: SRH services and information are provided in schools and health facilities. In Namukonda's study, only 28% of adolescents accessed HIV testing and only 17.1% reported accessing contraceptives. In 2018, condom use was reported as 41% among adolescents aged 15-19 and at 40% among young adults aged 20-24 [21]. All studies that explored knowledge, attitudes or access to services reported that knowledge levels affected uptake of SRH services including HIV testing, contraceptives and both abortion and post-abortion services [64,74]. Concerns over provider amicability, receptiveness, perceived judgement, enacted stigma and lack of confidentiality in health facilities demotivated service uptake, highlighting a persisting gap and unmet needs for AYP friendly SRH services which need to be fulfilled. In another study conducted in Ethiopia, Zambia and Malawi, Zambia was described as one of the countries with a more progressive law on abortion with a "requirement of three medical doctors, one of whom must be a specialist to approve the procedure" and if a minor is involved, abortion should be done only in the "best interest of the minor". However, implementation of this law in relation to

adolescents is highly influenced by both poor understanding and limited interpretation of the laws [75].

Access to SRH services was reported to be poorer among sexual minority subgroups as compared to heterosexual AYP. Only one multi-country qualitative study conducted in Malawi, Namibia, Zambia and Zimbabwe reported on factors affecting access to SRH services among gender minority AYP [59]. Some of the challenges reported included the presence of strong heteronormative norms which have led to stigmatization and discrimination of non-heterosexual subgroups. Muller et al., found that most of the interventions and services at public health facilities were not accommodative to the SRH needs of gender minority AYP. Consequently, gender minority AYP fear to access much needed services. In addition, health workers were reported to be judgemental and with poor attitudes toward gender minority AYP. In many communities, stigmatization was often validated by social norms [59]. Among heterosexual AYP, access to SRH services (including information) was reported to be affected by socio-cultural norms, myths and misconceptions, poor services, lack of knowledge and mistrust of health workers [74,76–78]. The results show that adolescents' access to SRH services were already restricted by several factors before the onset of COVID-19 [79].

Appropriateness: Engaging AYP in the design of an SRH intervention was feasible, informative and considered responsive to the needs of AYP. The iterative process of AYP engagement facilitated the design of an intervention that is informed by AYP and therefore implementable [80].

Concerns regarding the appropriateness of reproductive health messages affected the delivery of SRHR information to adolescents. For example, CSE which was launched by the government with the view of improving knowledge about sexuality and reproduction has been received with mixed reactions in both schools and community settings [81]. Factors facilitating uptake of CSE include the use of participatory learning methods and the perceived compatibility of the content of the sessions with the science curriculum. Barriers to uptake of CSE included limited perceived benefits, unsupportive households and community environments, limited training among teachers or health providers in CSE and cultural and religious beliefs among teachers and parents regarding the use of contraceptives among the learners [82].

One multinational article assessed the appropriateness of country specific legal frameworks on governing adolescent HIV/AIDS and SRH services in five countries, including Zambia [56]. Similar to other countries, inconsistencies were found in the Zambian policy which could hinder some adolescents from accessing services. Most of these inconsistencies related to the framing of the policy which consequently resulted in poor or subjective interpretation and implementation. For example, age of consent for HIV testing in Zambia requires all adolescents below the age of 16 years to obtain parental consent for them to be tested [56]. This requirement was reported to have created barriers not only for HIV testing but also SRH related services such as contraceptives. Another example is the criminalisation of same sex relationships, which by virtue of having the law in place prevents the majority of non-heterosexual adolescents from accessing services for fear of being punished by the law (if their sexual orientation were to

be reviewed while accessing services). The third example is the limited awareness and poor framing of the law on abortion, which allows individual health workers to subjectively interpret and implement the law [75]. In all the studies, ensuring appropriateness of SRH health services was considered key [59].

Coverage: The majority of the studies (33 out of 34) were conducted among heterosexual individuals. Two qualitative studies discussed SRH needs and behaviour specific to HIV positive adolescents. These studies found that HIV positive AYP need more information on how to prevent mother-to-child transmission for when have children [66]. Similar to HIV negative adolescents, access to SRH was affected by religious and social norms and thus access to the much needed contraceptives and other SRH services was limited [78]. Recommendations were made to develop programmes that integrate contraceptive service provision within an adolescent's HIV treatment and care cascade [66,77].

Only one study considered early pregnancies in relation to adolescents engaging in transactional sex [72]. The study reported that AYP who engage in transactional sex were 30% more likely to get pregnant as compared to their peers who were not involved in transactional sex. One key factor reported to influence girls' involvement in transactional sex was poverty; hence, the need to develop interventions that empower them or offer economic support. Other key factors include lack of knowledge, limited access to contraceptive and the failure to negotiate for safer sex. Yet, these were lesser motivations than the need for money, food, transport, rent and other material things. The study also discussed the need to address transactional sex in policies and strategies that aim to address the well-being of AYP [72].

Intervention outputs, outcomes and impact

Delivery and scale up of minimum adolescent friendly services: Eight of the studies reviewed reported comprehensive sexuality education (CSE) as a basic SRH need by AYP. School based SRH programs were reported as effective in improving knowledge and access to SRH services among school going AYP [55,64,65,82,83]. However, one recent article by Namukonda et al., (2020) evaluated CSE and reported that AYP who participated in the study had moderate knowledge of CSE principles. This result was higher among older adolescents compared to younger ones. The barriers affecting the implementation of CSE were similar to those affecting uptakes of CSE (discussed above). Namukonda's study highlighted the lack of trusted authority figures to discuss CSE with teachers, being uncomfortable discussing certain SRH topics and negative social norms reinforcing negative attitude towards SRH services as key factors to implementing CSE [64]. Interventions that provided economic support to adolescents played a significant role in influencing both educational and sexual decision making among female adolescents. The economic support triggered independence and empowerment, increased assertiveness and autonomy, reduced desire for sexual relationships with boys in exchange for cash and gifts, increased motivation for school, enhanced parental and community support for female adolescents' education and reduced school dropouts [84].

Interventions that provided economic support to adolescents played a significant role in influencing both educational and sexual decision making among female adolescents.

The Adolescent Girls Empowerment Programme (AGEP) which included weekly, mentor-led girls group meetings on health, life skills and financial education as well as a health voucher redeemable for general wellness and reproductive health services and an adolescent-friendly savings account, had modest, positive impacts on SRH knowledge after two and four years, financial literacy after two years, savings behaviour after two and four years, self-efficacy after four years and transactional sex after two and four years. It was recommended that additional attention be given to the social and economic environment in which girls are living [70]. Schooling also serves as a protection for girls against both child marriage and teenage pregnancy. A study in Chadiza and Petauke districts showed that the prevalence of child marriage among women aged 18-24 decreased marginally from 13% at baseline to 11% at end-line, which is statistically significant when adjusted for age and school attendance [79].

Below are some the programmes and interventions that worked previously in addressing existing challenges which could be rolled out with proper planning:

- SRH Programmes implemented in the community-based health system setting are anticipated to improve uptake of SRHR services [85]
- School-based programmes in combination with referral to SRH health services [82]
- SRH programmes that prioritize engagement and participation of young people [86]
- Community dialogue and support to promote positive social norms on adolescents SRH [68,70,87]
- Interventions aimed at providing SRH information while at the same time empowering adolescents i.e., addressing the economic needs of adolescents through social cash transfer and skills building [72,87].

A study in Chadiza and Petauke districts showed that the prevalence of child marriage among women aged 18-24 decreased marginally from 13% at baseline to 11% at end-line, which is statistically significant when adjusted for age and school attendance

Additionally, only one qualitative study by Mulubwa et al. (2020) that reported on responsive community-based SRH for adolescent [85]. Mulubwa et al. (2020) proposed a programme theory in which ordinary community health systems could be transformed to adolescent responsive systems. That is, if interventions targeting adolescents SRH are supported by contextual factors, such as existing policies and guidelines, social cultural norms and functional structures. If all relevant stakeholders work together, such interventions are more likely to increase awareness, improve knowledge, lead to clarified values that promote positive adolescent sexuality norms and have supportive attitudes for adolescents to access SRH services. More research is required to identify how to strengthen and govern adolescents' responsive health systems as they are key to improving AYP's well-being [85].

Sexual and Gender-based Violence



Overall status of available evidence

Overall, local evidence seems to suggest no standardized approach to reporting sexual and gender-based violence especially among AYP. In some studies, sexual violence was reported independently while in other studies sexual and gender-based violence were combined. Based on local evidence, most of the prevalence reported was not comparable as studies were conducted in different settings across the country. Interventions to address sexual and gender-based violence included providing counselling and treatment at a health facility coupled with reporting cases for legal action. Integrated services were suggested in one study, although actualization has been criticized for increasing the time AYP spend at health facilities.

Overall, local evidence seems to suggest that there is no standardized approach to reporting cases of sexual and gender based violence especially among AYP.

Characteristics of studies included in the analysis

Of the seven articles included in the review [19,88–93], two were multi-country studies, one was a systematic review, one was a qualitative study and the other three (published by the same author) reported quantitative and qualitative evaluations of one project conducted in Zambia in which the target population were HIV positive AYP [92]. The target population for four of the articles was AYP aged 15-24 and 13-24 for one of the multi-county studies. The systematic review article reported on adolescents who had experienced violence with childhood intimate partners although age was not specified [89]. Two studies focused on adolescent girls and young women, while the rest of the studies focused on AYP in general [19,88,90].

Prevalence of Sexual and Gender based Violence and risk factors

Five studies have reported on the prevalence of sexual and gender-based violence. Although these studies may not be comparable, they offer useful indicators of the prevalence of sexual and gender-based violence in Zambia [19,89–92]. In a systematic review conducted in 2013, Zambia was reported to have had the highest prevalence of sexual violence (48.0%) among the five countries (namely Egypt, Kenya, Malawi, Rwanda and Zambia) that were included in the review [89]. This prevalence was reported to have reduced to 22.2% by Mathur et al. in 2018 [90]. Further reductions in the prevalence of sexual violence were reported by studies published in 2020, with a general population prevalence of sexual and gender-based estimated at 17.1% and 10.4% among HIV positive individuals. In all the studies, the prevalence of sexual violence was more common for women as compared to their male counterparts. In addition, perpetrators of sexual violence were current or previous partners. This result was similar to that reported in the Zambia Demographic

and Health Survey and elaborated on in a report by Ministry of General Education that 47% of the women who had ever been married experienced physical, sexual and /or emotional violence from their current partner [19]. The Zambia Demographic and Health Survey found that 21% of women aged 15-19 have experienced physical violence [22]. There is need for a more standardized and adolescent friendly approach of reporting sexual and gender-based violence especially among AYP where most sexual relationships are secretive [19].

In two studies, sexual violence from non-intimate partners was associated with stress, anxiety, depression and suicidal ideation [88,92], while another study linked sexual violence to poor mental health; experiences of sexually transmitted infections (STIs) and increased HIV risk perception [90]. Among HIV positive AYP, sexual violence was reported to be associated with viral load failure. This is because sexual violence can potentially disrupt antiretroviral therapy and consequently viral load suppression [91].

Service delivery and utilization

Appropriateness: Although none studies in this review discussed appropriateness of interventions targeting sexual and gender-based violence, one of the qualitative studies nested in a randomized controlled trial reported recruiting HIV positive AYP who participated in an intervention that offered them peer mentorship appropriate for their needs [92]. However, the main aim of the study was not addressing sexual and gender-based violence but HIV viral suppression. Merrill et al. further highlighted the need for clinics to put in place measures to screen AYP from sexual abuse in addition to physical and psychological abuse [93]. Appropriate services should also include information on how young people can avoid and/or cope after sexual violence incidents [92]. In another study, an integrated approach for delivering SRHR services including HIV services and services related to sexual and gender-based violence were considered. However, it was noted that integrated services may discourage some adolescents from seeking SRHR services as adolescents tend to take longer at health facilities [19].

Availability: Among all the studies included in this review, only one qualitative study targeting HIV positive adolescents discussed how sexual and gender-based violence services could be made available to AYP especially when accessing clinical services. Some of the recommendations from HIV positive adolescents included the need to provide safe and private spaces for AYP to freely discuss sexual and gender-based violence. The study also reported on the importance of health workers deliberately initiated conversations on violence (sexual violence inclusive) with AYP visiting the health facility as a way of improving availability [92].

Some of the recommendations from HIV positive adolescents included the need to provide safe and private spaces for AYP to freely discuss sexual and gender-based violence.

Acceptability: In two studies, sexual and gender-based violence was associated to poor health seeking behaviour [19,90]. In one study, it was reported that most of the adolescents who went to the health facility to seek services were accompanied by their parents and this limited the level of openness in discussing sexual violence. In some cases, full information was not disclosed especially if the perpetrator was a family member. In this study, health workers also report many situations where parents/guardian report sexual and genders-based violence, allow the AYP to seek health care but later withdraw the case from legal action [19]. Thus, the recommended community sensitization is required to educated adolescents and parents/guardians on the need to follow legal procedures for sexual and gender-based violence [19]. Adolescents who participated in Mathur et al.'s study recommended that there was need to expand and/or strengthen adolescent friendly sexual violence prevention and screening programmes. In addition, the study also highlighted the critical need to provide acceptable post-violence care in order to reduce poor sexual and mental health outcomes among adolescents who experience sexual and gender-based violence [90].

Accessibility: The study by Mathur et al. was part of the larger implementation research study that focused on understanding sexual violence in relation to HIV risk among adolescents and young girls. Mathur et al.'s study reported that access to sexual and gender-based violence interventions, such as counselling, treatment and support was very low [90].

Quality of services: Despite evidence showing the negative consequences of sexual violence and resulting pregnancies [88], none of the studies reported on the quality of services offered at health facilities. However, one study reported that poor, delayed or no action is taken to punish perpetrators by responsible organizations and this tended to discourage communities from reporting sexual and gender-based violence cases [19]. There is a need for more research targeted for improving the quality of sexual and gender-based violence care and support offered at both health facilities and within legal systems.

There is a need for more research targeted for improving the quality of sexual and gender-based violence care and support offered at both health facilities and within legal systems.

Intervention outputs, outcomes and impact

Only one qualitative study attempted to report on awareness of adolescents on sexual and gender-based violence. Although the study reported that most of the participants they interviewed knew what sexual and gender-based violence was, the data was not sufficient to draw any conclusions [19]. We found no studies specific to Zambia that discussed outcomes related to utilization of sexual and gender-violence services for AYP or issues related to leadership and governance of responsive sexual and gender-based violence services.



Alcohol and substance abuse

Overall status of available evidence

Despite existing evidence being based on secondary analyses of data collected more than five years ago, the high proportions of adolescents who consume alcohol and abuse different substances underscores the prioritization of this area within the Adolescent Health Strategy. The absence of intervention related data on programmes targeted towards addressing alcohol and substance abuse among adolescents and young people also emphasizes the need for additional research and programme focus in the area.

Characteristics of studies included in the analysis

The review identified five articles that explored alcohol and substance abuse among adolescent and young people [94–98]. All the studies utilized quantitative methodologies, four of which were secondary analyses of national survey data such as the Global School Based Health Survey and the Global Youth Tobacco Survey [94–97]. Whereas one of the studies was a cross sectional survey [98], only one of the studies evaluated alcohol and substance abuse among out of school adolescents and young people [98].

Prevalence and risk factors

The studies examined the extent to which adolescents self-reported alcohol and substance use. Siziya et al. found that 42.2% had consumed alcohol and 37.2% had consumed cannabis [94]. The study found that though higher proportions of female adolescents had never consumed alcohol or cannabis when compared to male adolescents, the difference was only significant when it came to cannabis use [94]. A larger percentage of adolescents aged 14 and below were more likely to have smoked cannabis even though the difference among the two categories was not significant [94]. Furthermore, adolescents who had sexual intercourse, consumed alcohol, experienced bullying and did not have any parental supervision were more likely to smoke cannabis [94]. In comparison, Swahn et al. reported that 36.4% of adolescents were 13 years or younger when they had their first drink of alcohol and 42.6% were currently using alcohol. Further, 45.1% of adolescents had experienced a negative consequence from drinking (problem drinking), such as getting in trouble with their parents, with girls having a higher risk for problem drinking [97]. Early initiation into alcohol was significantly associated with problem drinking. The study also found that 36.7% had used drugs during their lifetime. Risk factors associated with problem drinking included current alcohol use, missing school, illicit drug use, sadness and experiences with bullying and victimization [97].

In relation to adolescents and young people living on the streets, Tyler et al. found that 63% of youth had used alcohol within the past 30 days with the higher proportion being male (73% vs 34%) [98]. 19% of the youth had seven or more drinks per day and 9.5% had used an illicit drug. The most frequently used drugs were marijuana (35%) of which a higher proportion of boys (47%) reported using it compared to girls (5%) [98]. The main reasons provided for using drugs or alcohol was that it was for fun, out of curiosity, to gain the acceptance of their peers and to enhance their sexual pleasure [97]. Having friends who drink or use drugs increased one's likelihood of doing the same [98].

Agaku et al. found that the overall smoking prevalence among adolescents was 7.0% with smoking susceptibility⁵ among non-smokers being 26.7% [95]. More than half of adolescents (59.5%) had been exposed to second-hand smoke from at least one source, with the most common sources being in enclosed public spaces (42.6%) and outdoor public spaces (45%) [95]. Older adolescents aged 16 and above were more likely to have been exposed to second-hand smoke [95]. Adolescents who perceived smoking as a way of making an individual more comfortable in social functions and had at least one parent or close friend who smoked had significantly higher prevalence of passive smoking [95]. Moreover, adolescents who were non-smokers but had a high smoking susceptibility and had at least one parent or close friend who smoked had higher odds of being exposed to second hand smoke [95]. Exposure to pro-tobacco advertising and ownership of tobacco branded items also increased the odds of adolescent non-smokers

The absence of intervention related data on programmes targeted towards addressing alcohol and substance abuse among adolescents and young people also emphasizes the need for additional research and programme focus in the area.

⁵ Smoking susceptibility as defined in this study refers to the likelihood of one taking up smoking as a habit.

exposure to second-hand smoke. Moreover, non-smokers who were exposed to second-hand smoke on a daily basis or in environments where second-hand smoke exposure was high were at higher odds of being susceptible to start smoking cigarettes [95].

In terms of the intention to quit smoking, Ng'ombe et al. found that 63.3% of adolescent smokers intended to quit [96]. Male adolescents had 42% higher odds of planning to quit smoking compared to female students [96]. Whereas adolescents aged at least 17 years were 33% more likely to quit smoking compared to those aged 11 or less [96]. Smoking an additional cigarette a day, smoking smokeless tobacco, smoking often in public places and receiving advice on smoke cessation also increased one's odds of planning to quit [96]. Specific beliefs that increased an adolescent's odds of planning to quit were 1) the perception that quitting is a difficult process; 2) the view that smoking is harmful to one's health; 3) that smoking can result in weight loss; 4) that adolescents should seek permission from adults if they want to smoke; and 5) smoking is safe in the first one or two years [96]. However, adolescents who had smoked more cigarettes were less likely to stop smoking [96]. The odds of one planning to quit decreased by 32% if they lived close to shops where cigarettes are sold, if they smoked Peter Stuyvesant brand of cigarettes, which was seen as more prestigious brand of cigarettes and if they had close friends who smoke (16%) [96]. Being a member of a youth group also increased the intention to quit. The main reasons for quitting were to save money, improve health or their families' distaste of smoking [96].

Service delivery and utilisation

None of the studies reported on the delivery of services aimed at preventing smoking and drug use or treating drug dependent adolescents.

Intervention outputs, outcomes and impact

Moreover, none of the studies reported on interventions aimed at smoking cessation and curbing substance use.

The odds of one planning to quit decreased by 32% if they lived close to shops where cigarettes are sold, if they smoked Peter Stuyvesant brand of cigarettes, which was seen as more prestigious brand of cigarettes and if they had close friends who smoke (16%)



Non-communicable diseases



Overall status of available evidence

None of the eligible articles reported on the four most common NCDs namely cardiovascular diseases, cancer, chronic respiratory diseases and diabetes. The remaining eligible studies reported on nutrition and mental health. Overall, local evidence on nutrition in relation to adolescents showed that poor nutrition outcomes are influenced by low economic status, low education attainment, marital status and having begun childbearing. Thus effective interventions targeting nutrition would work better if they took into consideration the household dynamic of adolescents. Local evidence in mental health papers showed no estimation of the prevalence of disease among adolescents in Zambia but highlights the need to develop or strengthen an adolescent's responsive, multi-sectorial approach aim addressing the mental health needs of adolescents.

Overall, local evidence on nutrition in relation to adolescents showed that poor nutrition outcomes are influenced by low economic status, low education attainment, marital status and having begun childbearing. Thus effective interventions targeting nutrition would work better if they took into consideration the household dynamic of adolescents.

Nutrition

Characteristics of studies included in the analysis

A total of 10 articles were included focusing on non-communicable diseases. Segregated by the type of NCD, seven articles were on mental health [99–105] while the remaining three articles reported on nutrition [106–108].

Of the three studies reporting on nutrition, one was a mixed method study aimed at assessing the nutritional and social contribution of meat in the diet of young adult men in urban and rural Zambia while the other two evaluated the same cluster randomized trial focusing on female adolescents [106–108].

Burden and risk factors related to nutrition

Two studies by Soler-Hampejsek et al. and Hewett et al. collected primary data to evaluate the impact of an adolescents-girl tailored nutritional education curriculum on nutrition outcomes, such as knowledge, dietary behaviour, anthropometry and anaemia. Participants for this intervention were vulnerable adolescents aged between 10 and 19. Soler-Hampejsek et al. found that marriage and childbearing may be associated with a high body mass index (BMI) [107]. Conversely, Hewett et al. found no significant change in nutrition knowledge and practices among adolescents who had participated in the study and this was attributed to poor household characteristics, such as low economic status, low educational attainment and low nutritional knowledge [106]. The third study found an association between beef consumption and cognitive development although this finding may not be conclusive due to the small number of heterogeneous studies that were included in the review [108].

Service delivery and utilization

The trial on adolescents-girl tailored nutritional education curriculum provided a context specific and age-appropriate intervention on adolescents' nutrition practices [104]. During implementation, younger adolescents (aged 10 to 14) were separated from older adolescents and provided with age sensitive information. Peer educators and mentors were used during facilitation. In addition, adolescents were surveyed based on information from the Ministry of General Education textbooks that most girls were expected to be familiar with. Although interactive and participatory approaches were used, the study reported no significant impact among girls who received the intervention. Furthermore, among vulnerable adolescents, financial, education and nutrition knowledge were found to be extremely low, especially at baseline and did not improve much at end line. In addition, 17% of the girls aged 10 to 14 were found to be stunted at baseline, which is a clear indication of under nutrition. Contrarily, most older girls (aged 15 to 19) were found to be overweight. At end-line, the study reported that some younger AYP could not distinguish between healthy and unhealthy food. These results may indicate a critical need for nutrition-related information and services among AYP [106].

Intervention outputs, outcomes and impact

Intervention outputs and outcomes varied across the three studies included in this review. The first study measured knowledge, dietary behaviour anthropometry and anaemia and reported no significant impact among girls who received the intervention compared to those in the control group [106]. The second study measured BMI in relation to marriage and childbearing and found that school-leaving was associated with higher BMI and increases the odds of being overweight while marriage was associated with increases of both being underweight and overweight [109]. The third study systematically reviewed literature linking beef to the cognitive development of children and adults and found no conclusive evidence to support the hypothesis [110].

Mental health

Characteristics of studies included in the analysis

Out of the 7 articles included under mental health, 5 were multi-country studies involving countries across Africa, one reported quantitative results and two reported qualitative results [99–105]. Davaasambuu et al. (2020) was purposively added to the list of selected articles because it discussed interventions on mental health in low- and middle-income countries (LMICs) although none of the articles were from Zambia [106].

Burden and risk factors related to nutrition

We found no studies specific to Zambia and within the review period that discussed the prevalence of mental health related diseases among adolescents, legitimacy of the problem, feasibility of response or support for response. Respondents put forward a range of experiences and suggestions for increasing the priority given to mental health and these have been highlighted under service delivery (below) [100]. We conclude with a broad suggestion to raise the priority of mental health at national, institutional and community levels.

Service delivery and utilization

A qualitative study conducted in 2019, described some crucial needs in the implementation of mental health services targeting AYP, among them include 1) the need to put in place safe and friendly spaces in which AYP can access mental health services without feeling stigmatised or discriminated [100]; 2) the need to employ a multi-sectoral and collaborative approach, and this could include working with relevant partners and stakeholders; 3) the need for advocacy services for mental health; 4) the need for community involvement and participation, which could potentially reduce the cost of accessing mental health services; and 5) the need for political will which can further translate into improved funding toward mental health in general [104]. All the other articles reviewed supported the issues raised in the article by Davids et al. (2019) [102,103].

Another key gap identified in the implementation of mental health interventions targeted towards AYP was the lack of culturally and context sensitive interventions that go beyond providing counselling services to address other needs, such as financial help or shelter [99]. In another article, AYP in same sex relationships were reported to be worse-off with regard to mental health challenges and access to services due to current Zambian laws that criminalize same sex relationships [105]. Access to mental health services was affected by stigma and discrimination, indicating the need for specialised, multi-sectoral, stigma free spaces to address mental health issues for AYP.

Intervention outputs, outcomes and impact

Finally, a systematic review and meta-analysis by Davaasambuu et al. (2020) presented several interventions used to address mental health issues such as depression among AYP and these include creative expressing skills, somatic stimulation, meditative practice, and/or cooperative playing, used in combination or in isolation. In this meta-analysis, psychotherapeutic interventions to reduce depression were more effective when implemented by a nurse, lay counsellor or social worker as compared to other stakeholders, such as teachers or parents [104].



Adolescents and young people with special needs

Overall status of available evidence

Generally, there is very limited evidence on studies that look at adolescents with special needs as defined in the Adolescent Health Strategy as those with disabilities [5]. For the sake of the review, classification was expanded to include other categories of adolescents and young people who are in vulnerable conditions, such as those in correctional facilities and refugees. Even then the available evidence seems to suggest that health programmes have not been inclusive in their approaches to provision of services to these populations from involvement in the planning and implementation cycles, to a review of the differential health outcomes when compared to other groups of adolescent and young people.

Characteristics of studies included in the analysis

There is a paucity of studies focusing on adolescents and young people with special needs as only one peer review paper met the eligibility criteria [111]. Though the literature search was able to identify studies exploring the impact of disabilities on access to health services, these studies did not report specifically on adolescents and young people [112–116]. Kumwenda et al. was the only study that met the eligibility criteria. This study applied ethical frameworks to assess the health needs of adolescents found in correctional facilities in Mazabuka District. Data was collected through qualitative data collection approaches amongst adolescents aged between 11 and 19 [111].

Additional information sought from grey literature through specific reports focused on refugees [117] and children with disabilities [118–121].

Prevalence and risk factors

According to the National Disability Survey, 4.4% of children aged between 2 and 17 have a disability with a higher proportion living in urban areas (4.6% vs 4.2%) and among male children (4.5% vs 4.2%). The proportion of young people aged 18 to 20 who were disabled is 5.8% [119]. Kumwenda et al. did not measure the magnitude of different conditions that adolescents and young people have living in correctional facilities; however, participants were able to describe some of the conditions that they faced regularly [111]. These included HIV/AIDS, tuberculosis, malaria and sexually transmitted infections. STIs were commonly reported as a result of sexual abuse by adult prisoners or casual sex with girls living in nearby communities. These diseases were felt to be common due to the poor health status of the inmates, which they attributed to HIV infection, poor diet and confinement in poorly ventilated cells [111]. In reports that included young refugees where data was collected qualitatively, key issues that they identified as affecting their quality of health included a rise in the occurrence of sexual and gender-based violence especially among adolescent girls and young women, which led to negative impacts on their physical and mental well-being [117]. Refugee youths were also prone to alcohol and substance abuse arising from lack of employment, education or recreational opportunities [117].

Service delivery and utilisation

Appropriateness: According to the UN Report on the Rights of Persons with Disabilities in Zambia, there was inadequate availability of health services and, in particular, SRH services that appropriately considered the needs of people living with disabilities. Some health workers also lacked adequate knowledge of SRH needs for people living with disabilities and experienced communication challenges when delivering services [122]. Kumwenda et al. also found that in correctional facilities and approved schools, limited resources had been set aside to conduct health needs assessments which made it difficult to prioritize what key services were needed for and there was limited information available on what the biggest health priorities were [111].

Prior to detainment, limited screening was conducted which hampered the evaluation of their health status, in turn affecting the ease with which decisions on the most appropriate services to be provided could be made. Even where screening was done, it was often conducted by unqualified prison personnel who did not have the necessary training needed to collect accurate and relevant personal health information. Failure to know their health status meant that a lot of the adolescents were not able to exercise full agency over their health and utilize existing health services [111]. The participation of young refugees in service delivery was extremely limited. In one of the reports which explored the extent of youth participation, most of the refugees stated that they had never been asked to describe their needs and potential avenues through which their needs could be addressed. Further, they had not been provided with any avenues through which they could channel their challenges or even provide feedback to organizations working within their refugee settlements [117]. For parents with children with disabilities, accessing healthcare often involved leaving their children behind when going to health facilities and having to get diagnosis based on the signs and symptoms that they described. Reasons provided for this included long distances to the facilities [118]. Health facilities lack the appropriate infrastructure to meet the needs of persons

There is very limited evidence on adolescents with special needs as defined in the Adolescent Health Strategy such as those with disabilities. Available evidence suggests that health programmes have not been inclusive in their approaches to provision of services to these populations when compared to other groups of adolescent and young people.

with disabilities and lack sign language interpreters that make it difficult for patients and health providers to communicate effectively [120]. Parents would resort to accessing care from traditional healers even if the services they received were not adequate to address their children's health concerns [118].

Availability: There is limited availability of health services that respond to the needs of people with disabilities in Zambia [122]. Correctional facilities and approved schools that were the study sites in Kumwenda et al's study did not have health facilities on site and adolescents who fell sick were often referred to nearby health facilities for treatment [111]. These facilities were not always staffed with adequately trained health professionals or fully equipped with necessary medicines and supplies which impacted the quality of the services that they received e.g. prescriptions could not be filled out due to absence of medication [111]. Referral services were also

greatly affected by incomplete and insufficient collection and storage of medical records which also impacted patient monitoring and follow up [111]. For young refugees, clinics found within refugee settlements tend to dispense expired medication and have very few health care staff who are overwhelmed by the demand for services that resulted in delays in treatment [117].

Acceptability: The UN Report on Rights of Persons with Disabilities in Zambia noted that high level of stigma and prejudice among the general population against people with disabilities resulted in profound and widespread denial of rights – SRH-related and otherwise – among people with disabilities in Zambia [122]. One of the concerns raised by the adolescents who took part in the Kumwenda et al's study was that the health facilities where they were taken when they got ill did not have adolescent friendly spaces which impeded their feeling of privacy and confidentiality [111]. Furthermore, key stakeholders who are typically involved in providing support to the Ministry of Health for the provision of health services in correctional facilities had limited knowledge and awareness of the existence of adolescent prisoners and detainees. This has resulted in limited involvement in strengthening the delivery of adolescent friendly services [111].

Accessibility: Self stigmatization among people living with disabilities, limited knowledge on SRH and inadequate availability of services that are appropriate for people living with disabilities affected access to health services including SRH services [122]. Health information was provided through health educational talks provided by prison personnel and were mostly focused on HIV/AIDS and syphilis [111]. For young refugees, limited access to quality healthcare, good sanitation and comprehensive public health information was identified as a significant barrier to the realization of the highest quality of health. Limited availability of health services, poor health worker attitudes and costs associated with accessing health care were also identified as barriers [117]. Refugee settlements were described as having poor quality WASH facilities.

Quality of services: Overall, the adolescent living with disabilities as well as adolescent prisoners and detainees felt that the quality of health services that they received was poor. Parents of children with disability pointed out that sometimes when they go to a health facility, their children were not evaluated and provided good quality of care. The parents ended up being dissatisfied

with the services that they received which meant that they often failed to go back opting to utilize the services of traditional healers instead [118]. Further, they pointed out that they did not receive adequate information on their children's conditions at the health facilities [118]. Parents of children with disabilities living in rural areas felt that the health centres close to them were not suitably equipped to handle their children's needs and the costs associated with seeking care when referred to higher level health facilities were often exclusionary. As such they did not go when referrals were made [118].

Intervention outputs, outcomes and impact

None of the peer reviewed studies that were identified through the searches reported on the impact of interventions aimed at improving delivery and utilization of health services among adolescents and young people with special needs. However, the reports did describe approaches that can help address the needs of adolescents and young people with special needs. For instance, the Zambia Agency of Persons with Disability have been supporting the training of disability focal point persons within different ministries whose roles is to facilitate the mainstreaming of disability issues within their ministries. The main limitations to this strategy was that the positions are not paid and the selected focal points would sometimes have limited influence in decision making processes [121]. Another intervention for mainstreaming disability in community settings is through the use of community based rehabilitation which has been piloted in Livingstone, Kazungula and Zimba the intervention includes activities such as promoting early identification of persons with disabilities and awareness raising programmes [121].

For adolescents and young people living in refugee settlements, potential interventions identified through dialogue with young people that can be used to address the high rates of sexual and gender-based violence (SGBV) were sensitization and awareness raising initiatives through peers as well as the engagement of parents and community leaders [117]. Further, the creation of youth committees and boards could also help increase their participation in service delivery. The refugee youth also pointed out the value of providing public health education including through youth peer educators to share the health messages such as those on WASH with possible platforms for sharing information being social media, churches and schools including through drama [117].

The UN Report on Rights of Persons with Disabilities in Zambia also noted that in practice, the application/implementation of the policies on PWDs was extremely limited [122]. Resources earmarked for people with disabilities were frequently diverted elsewhere, and resources for the SRH of younger people were not tailored towards young people with disabilities. There was little to no accountability for enforcement mechanisms for policies and resources allocated under these. Many government officials were not aware of the specific policies cited for the protection of PWDs, nor of international instruments such as the Convention on the Rights of Persons with Disabilities (CRPD). Furthermore, knowledge of these policies among girls with disabilities was virtually non-existent.

Table 1. Summary of interventions

EFFECTIVE INTERVENTIONS	IMPLEMENTATION STRATEGIES	OUTCOMES	FEASIBILITY OF INTERVENTION IN THE ZAMBIAN CONTEXT
HIV/AIDS and STIs			
Community based service delivery approaches for adolescents [52,123]	<ul style="list-style-type: none"> • Integrated HIV package of services targeted towards adolescents and young people • Service delivered by trained CHWs through door-to-door approaches • Linkage to health facilities for all household occupants • Condom distribution and VMMC • Youth counsellors • Training of parents and clinic staff • Support for youth friendly corners as information hubs 	<ul style="list-style-type: none"> • Higher rates of utilisation of HIV services due to increased acceptability • Increase in coverage of services such as ART. • Increased retention in care. • Increase in knowledge of one's HIV status 	<ul style="list-style-type: none"> • Given that HIV services are being implemented within community structures, the inclusion of adolescent targeted interventions would be feasible. • Further, strengthening already existing adolescent friendly health corners within health facility is an effective means through which access to HIV information can be improved.
Promoting the use of HIV self-testing kits [53]	<ul style="list-style-type: none"> • Use of community-based distributors of HIVST kits • Health information • In person or video clip demonstration of use • Adolescent friendly instruction guides • Post-test guidance and referral cards. • Toll free hotlines 	<ul style="list-style-type: none"> • Adoption of testing services. • Increase in knowledge of one's HIV status especially among first time testers 	<ul style="list-style-type: none"> • Existing programmes such as VMMC programmes can facilitate the scale-up of such services.
Integrated psychosocial, economic and clinical service delivery interventions [54]	<ul style="list-style-type: none"> • Improved case management • Parenting skills training for caregivers • Economic support for caregivers • Provision of HIV services • Provision of farming inputs • Psychosocial support for adolescents 	<ul style="list-style-type: none"> • Better health and educational outcomes for Adolescents living with HIV. 	<ul style="list-style-type: none"> • Holistic approaches to supporting service delivery can be integrated into existing community-based programmes.
Sexual and reproductive Health			
School based programmes in combination with service provision [81,82].	<ul style="list-style-type: none"> • CSE delivered by trained and teachers • Teachers incentivized to deliver CSE • Service delivery supported by nurses and clinical officers • Strong linkages to SRH services. 	<ul style="list-style-type: none"> • Improved child and adolescents' health [65] • Increased Knowledge, awareness and values [64]. 	<ul style="list-style-type: none"> • Integrated approach of linking schools to services can improve uptake of CSE and SRH services [64] • School based-health interventions are cost effective and can improve student health knowledge and health status [65]

			<ul style="list-style-type: none"> • In addition to SRH information and services, school can be used to deliver other services i.e., related to nutrition, infectious diseases and non-communicable diseases. • A multisector standardized CSE curriculum that reaches both in and out of school adolescent girls and boys should be considered [21]. • Implementing may the use of modern technology aimed at improving both interaction and comprehension of CSE. However, this should take into account the living conditions or setting dynamics of rural schools and adolescents in Zambia [21].
SRH Programmes implemented in the community-based health system [85]	<ul style="list-style-type: none"> • Involvement of schools, community structures, health facilities and community-based stakeholders such as community-health workers and adolescents [64,85]. 	<ul style="list-style-type: none"> • Potential adolescent responsive community-based health system. 	<ul style="list-style-type: none"> • The community-based approach is feasible and has been shown to be effective in addressing SRH challenges such as HIV.
Interventions that prioritize Community dialogue and support or promote positive social norms on adolescents SRH[68,70,78]	<ul style="list-style-type: none"> • Community meetings • SRH education • Value clarification • Addressing negative social norms related to adolescent sexuality. 	<ul style="list-style-type: none"> • Increase community participation and ownership • Clarified values • Could potentially lead to a supportive environment. 	<ul style="list-style-type: none"> • Community engagement is feasible and effective not only for improving adolescent SRH but health in general.
Interventions aimed at providing SRH information while at the same time empowering adolescents i.e., addressing the economic needs of adolescents through social cash transfer and skills building [72,87]	<ul style="list-style-type: none"> • Social cash transfer to adolescents and family • Provision of Skills and knowledge. 	<ul style="list-style-type: none"> • Improves Knowledge, uptake and use of contraceptives for example female condoms. 	<ul style="list-style-type: none"> • Economic support combined with community dialogue may improve knowledge. Reduce sexual activity and increase uptake and use of female condoms. However, more research is needed explore how such interventions can be sustained in LMICs such as Zambia.
SRH programs that prioritise engagement and participation of young [86]	<ul style="list-style-type: none"> • Youth led strategies • Peer educators • Adolescents support groups. 	<ul style="list-style-type: none"> • Reduced stigma to access services • Improved self confidence • Builds capacity to deliver SRH services. 	<ul style="list-style-type: none"> • Youth led SRH approaches are feasible and effective in improving access to SRH services. However, comprehensive training should be provided.

Gender Based Violence			
Interventions that aim to increase awareness and utilization of GBV services [92].	<ul style="list-style-type: none"> • GBV and sexual violence awareness • Use of peer mentors to educate adolescents and young adults. 	<ul style="list-style-type: none"> • Sexual violence is associated HIV-related risk and could be a potential barrier to HIV self-management. 	<ul style="list-style-type: none"> • Sexual violence is significantly associated poor mental and SRH outcomes. Hence the need to strengthen sexual violence prevention strategies • However, none of the studies discussed specific interventions to addressing gender and sexual violence among adolescents • More research is needed to develop and/or tailor existing gender and sexual violence interventions to adolescents needs.
Effectively estimating prevalence especially among adolescents and young adults [89]	<ul style="list-style-type: none"> • Developing standardised tools. 	<ul style="list-style-type: none"> • High prevalence of sexual violence [89,90] 	<ul style="list-style-type: none"> • The need to standardise tools to determine the burden of sexual violence cannot be over emphasised. This approach will enable comparison of current studies to future studies.
Non-communicable diseases			
Mental health interventions should address social and contextual factors that influence uptake of information and services [100].	<ul style="list-style-type: none"> • Discussion to address stigma • Development of culturally competent interventions and messages • Engagement and collaboration among all key stakeholders • Dialogue to aimed at addressing negative adolescents' discourses • Implementation of psychotherapeutic interventions to reduce depression. 	<ul style="list-style-type: none"> • Improved adolescent's mental health knowledge and awareness. 	<ul style="list-style-type: none"> • There is need for development of mental health interventions that address the intrapersonal, interpersonal, institutional, community and policy context of adolescents' mental health. • Mental health interventions delivered by trained nurses, social workers and community health workers were reported to be more acceptable [104]
Interventions that aim to address nutrition status of adolescents should address both the social and economic factors [106,109]	<ul style="list-style-type: none"> • A multi-sectorial assert-building programme among vulnerable adolescents • Nutritional education. 	<ul style="list-style-type: none"> • BMI and nutritional status are associated with marital status, motherhood, leaving school and knowledge. 	<ul style="list-style-type: none"> • Future interventions aiming to improve nutritional status of adolescents should target both social and contextual factors as well as economic factors.

Adolescents with special needs			
<p>Youth committees, peer support groups and boards [117].</p>	<ul style="list-style-type: none"> • Improve inclusion of adolescents with disabilities and refugees in the planning and implementation of programmes • Empowerment of adolescent and young people with special needs • Meaningful engagement of adolescents with special needs to actively participate in addressing issues affecting them. 	<ul style="list-style-type: none"> • Greater engagement of adolescents with special needs • Tailored programmes that incorporate the needs of adolescents with special needs. 	<ul style="list-style-type: none"> • Though youth committees and boards have been used in programme activities in Zambia. Very few have involved adolescents with special needs.
<p>Community based rehabilitation programmes targeting adolescents with disabilities [20].</p>	<ul style="list-style-type: none"> • Training family and communities on disability and community-based rehabilitation • Providing educational assistance and facilitating inclusive education through capacity building with teaching staff and students • Referral of adolescents with disabilities for specialised care • Providing assistive devices • Creating employment opportunities • Providing support for social activities such as sports • Providing financial assistances. 	<ul style="list-style-type: none"> • Changes in social and cultural perceptions about persons with disabilities within community settings • Skills development for adolescents with disability • Training of community-based service providers to handle issues related to disability for improved service delivery • Increased independence of adolescents with disability. 	<ul style="list-style-type: none"> • The Community based rehabilitation programmes could be integrated into existing community-based programmes with the health and education sectors.



CONCLUSIONS

HIV/AIDS and STIs

Prevalence and risk factors

- There has been a significant decline in the prevalence of HIV in women aged between 15 and 19 from 4.8% in 2013/2014 to 2.6% in 2018 as well as in 15-19-year-old males from 4.1% to 2.1%. However, prevalence of HIV among the key populations (AYP) was higher than the general population.
- The HIV prevalence among FSWs reached as high as 53.6%, and the prevalence of syphilis was 32.8% in 2014. Comparable rates in 2014 for all adolescent girls (15–19) and young women (20–24 years) were 4.8% and 11.2% for HIV, and 4.9% and 9.8%. The prevalence of active syphilis among 15-24-year-olds was 2.4% and co-infection with HIV at 0.5%.

Programme implementation and implications

- The introduction of national test and treat policy, implementation of community based test and treat interventions targeted towards adolescents, carrying out of multicomponent interventions combining social support, economic empowerment, parental training delivered through community networks, the use of interactive or engaging strategies, as well as adolescents taking part in programmes that had adopted rights based approaches in the design and implementation of HIV services contributed to increased knowledge and information in HIV/ STI prevention, testing and treatment, reduction in stigma, and acceptability of HIV/AIDS interventions. Availability of few youth friendly services, youth clubs and peer educators at health facilities and HIV clinics provided a safe space for the adolescents to openly and freely discuss STI/HIV matters.
- Strengthening implementation of the STI/HIV programmes would require further enhancing collaboration between STI/ HIV and other community health services as there is limited integration of the services. Further, there is a need to address the lack of privacy and confidentiality in STI/ HIV services as well as ensuring that the programmes are compatible with prevailing cultural and religious beliefs. For school going adolescents, there is need to ensure flexible operating hours at health facilities to fit into school hours affected access to HIV services.

Sexual and reproductive health

Sexual and reproductive health burden and risk factors

- Teenage childbearing declined from 34% in 1992 to 29% in 2013-14 and 2018. Pregnancy and marriage risk factors include education attainment, age at first sex, household wealth, family structure and exposure to media, limited economic access, bride wealth and gender inequalities.

Programme implementation and implications

- School and community based SRH programmes including community dialogue and support as well as interventions addressing both SRH and economic needs of adolescents through social cash transfer, skills building and provision of SRH information and services in health facilities contributed to reducing teenage childbearing. The use of participatory learning methods and the perceived compatibility of the SRH content with the local needs positively affected acceptability of SRH information and services.
- Enhancing effectiveness of these programmes would require scaling up participatory SRH promotion strategies that should target addressing poor knowledge and attitudes among adolescents, negative/judgemental attitudes by providers, as well as strong heteronormative norms and discrimination of non-heterosexual subgroups demotivated service uptake. There is also a requirement to scale up economic and school support packages for young people as well as SRH policy inconsistencies.

Sexual and gender-based Violence

Prevalence and risk factors

- In 2013, Zambia was reported to have had the highest prevalence of sexual violence (48.0%) among the five countries. This prevalence reduced to 22.2% in 2018. Further reductions in the prevalence of sexual violence were reported in 2020, with a general population prevalence of sexual and gender-based violence estimated at 17.1% and 10.4% among HIV positive individuals. Violence was associated with stress, anxiety, depression and suicidal ideations, poor mental health and experiences of sexually transmitted infections (STIs) with viral load failure.

Programme implementation and implications

- Implementation of sexual and gender-based violence services, such as counselling, treatment and support contributed to the reduction in gender-based violence. However, access to such services was very low.
- To promote acceptability of SGBV prevention and treatment programmes, there is need to expand and/or scale up adolescent friendly sexual violence prevention and screening interventions and provide acceptable post-violence care as appropriate SGBV services are currently few.

Alcohol and substance abuse

Prevalence and risk factors

- In one study 42.2% of adolescents had consumed alcohol and 37.2% had consumed cannabis. 36.4% of adolescents were 13 years or younger when they had their first drink of alcohol and 42.6% were currently using alcohol. In relation to adolescents and young people living in the streets, 63% of youth had used alcohol within the past 30 days. In terms of intention to quit smoking, 63.3% of adolescent smokers intended to quit. Risk factors associated with problem drinking included current alcohol use, missing school, illicit drug use, sadness and experiences with bullying and victimization.

Programme implementation and implications

- None of the studies reported on the delivery of services aimed at preventing smoking and drug use or treating drug dependent adolescents. Moreover, none of the studies reported on interventions aimed at smoking cessation and curbing substance use.

Non-communicable diseases

Prevalence and risk factors

- One study showed that 17% of the girls aged 10 to 14 were stunted at baseline, a clear indication of under nutrition. However, most older girls (15 to 19) were found to be overweight. Marriage and childbearing may be associated with high BMI. A positive association was also found between beef consumption and cognitive development. There is scant information on mental health among adolescents as studies showed that mental health has not been accorded adequate priority.

Programme implementation and implications

- Nutritional services included providing nutritional education curriculum for context specific and age-appropriate intervention on adolescents' nutrition practices. Interventions used to address mental health issues included creative expressing skills, somatic stimulation, meditative practice, and/or cooperative playing used in combination or in isolation. Psychotherapeutic interventions to reduce depression were more effective when implemented by nurses, lay counsellors or social workers as compared to other stakeholders such as teachers or parents.
- Strengthening implementation of nutrition and mental health would require strengthening the implementation of Mental Health Policy and Food and Nutrition policies integrating mental health and nutrition services that such as safe and friendly spaces, as well as by promoting multisectoral and collaborative approach, advocacy services for mental health, community involvement and participation.

Adolescents and young people with special needs

Prevalence and risk factors

- 4.4% of children aged between 2 and 17 have a disability with a higher proportion living in urban areas (4.6% vs 4.2%) and among male children (4.5% vs 4.2%). The proportion of young people aged 18—20 who were disabled was 5.8%. There was a paucity of studies focusing on adolescents and young people with special needs in the general population. In correctional facilities, some of the conditions that adolescents faced included HIV/AIDS, tuberculosis, malaria and sexually transmitted infections as a result of sexual abuse by adult prisoners or casual sex with girls living in nearby communities.

Programme implementation and implications

- There was inadequate availability of health services, and, in particular, SRH services that appropriately considered the needs of people living with disabilities. Correctional facilities and approved schools have limited resources that had been set aside to provide key services to adolescents. None of the peer reviewed studies that were identified reported on the impact of interventions aimed at improving delivery and utilization of health services among adolescents and young people with special needs.



RECOMMENDATIONS

This section provides recommendations for strengthening adolescent health in Zambia. The recommendations are key in informing the implementation on the current Adolescent Health Strategy as well as informing the development of subsequent strategies. The recommendations have been categorized under three thematic areas namely programme, policy/ legal and research.

Programmatic recommendations

- ▶▶ Given that evidence shows that schooling serves as a protection for girls against both child marriage and teenage pregnancy as well as HIV, there is need that future programmes further promote girl-child education as a strategy for preventing SRH challenges through advocating for increased educational support including free primary and secondary school education.
- ▶▶ As evidence shows that SRH community based driven programmes including community ART models are effective in positively shaping adolescent health, it is important for future programmes to focus more on promoting collective action through increased involvement of gatekeepers, especially parents, teachers, health workers and traditional and religious leaders, in initiatives to promote mental, nutrition and reproductive health.
- ▶▶ Continued efforts are needed to expand the reach of youth friendly services and peer support as such interventions have proved effective in promoting adolescent health including improved SRHR knowledge, HIV testing, adherence to HIV treatment and mental health.

There is also a need to develop sustainability plans for youth friendly spaces in order to help in maintaining meaningful youth participation and youth/ adolescent-led activities.

- ▶▶ Given the challenges experienced in implementing comprehensive sexuality education in schools, there is need for attention to be given to value clarification among teachers, health workers and others involved in implementing SRHR interventions in the Adolescent Health Strategy. There is a need to promote the consistent use of (all possible) pregnancy prevention methods.
- ▶▶ As evidence shows that economic support towards adolescent girls (e.g., social cash transfer, saving groups and income generating activities) positively influence sexuality decisions, there is need to scale/ expanded these activities given the limited economic opportunities in rural Zambia.
- ▶▶ Since meaningful youth participation in the design of SRH interventions was feasible, informative and considered responsive to the needs of AYP, there is need to further promote and scale up youth-led activities to enhance programme reach and effectiveness of adolescent health interventions.
- ▶▶ To address the high rates of SGBV among adolescents and young people living in refugee settlements, there is need for sensitization and awareness raising initiatives through peers as well as the engagement of parents and community leaders. The creation of youth committees and boards could also help increase adolescent participation in service delivery. There is a need to integrate SGBV prevention messages in WASH platforms, social media, churches and schools including through drama.
- ▶▶ Addressing societal stigma towards adolescents should be a central pillar of the Adolescent Health Strategy if the key SRHR and health needs of adolescents especially adolescents with special needs are to be met. Broad-based approaches that challenge the prevailing mindset of people towards for example PWDs, and those that specifically tackle such stigma and abuses the treatment of PWDs in the community and health facilities should form part of the Strategy.

Policy/legal recommendations

- ▶▶ Existing policies and initiatives that focus on SRHR among adolescents could be tailored to include strategies targeting adolescents with disabilities, adolescents in correctional institutions, young refugees and young key populations with specific references to their SRHR and adolescent health in general. Introducing the concepts of SRHR and general health for the adolescents in these policies can fight stigma and discrimination as well as introduce positive ideas and expectations in relation to SRHR and general adolescent health for these sub-groups.
- ▶▶ Zambia has a suite of national plans, laws, policies, and regulations that focus on nutrition, mental health and reproductive health. The major challenges include disseminating, awareness-raising, resourcing and monitoring the implementation of existing policies across the board. There is thus a need for resourcing and practical implementation of existing laws and policies.

- »» There is need to further enhance the addressing of nutrition and mental health issues among adolescents by integrating adolescent mental health and nutrition needs in the Adolescent Health Strategy including comprehensive consideration of these aspects into the youth friendly spaces.
- »» Scale up the implementation of the National Test and Treat Policy as it contributed to an increase in rapid ART initiation. There is also a need to consider scale up of access to pre-exposure prophylaxis among key populations.

Research recommendations

- »» To investigate the impact and sustainability of economic empowerment interventions in contributing to gender equality among adolescents.
- »» To investigate the impact of COVID-19 prevention measures on adolescents' accessibility to adolescent health services and the best strategies to expand access to these services in the context of COVID-19.
- »» To assess the delivery and impact of services aimed at preventing smoking and drug use or treating drug dependent among adolescents.
- »» To examine dietary behaviour among adolescents.
- »» To examine impact of interventions aimed at improving delivery and utilization of health services among adolescents and young people with special needs.
- »» To determine the burden of mental health related diseases among adolescents, legitimacy of the problem, feasibility of response and support for response.

Emerging areas of focus

- »» Strategies for strategies to expand access to adolescent health services in the context of COVID-19.
- »» Given the current controversy regarding the delivery of CSE among stakeholders, there is need to focus on sustained advocacy by civil society to secure the implementation of CSE at national and provincial level.

REFERENCES

1. Bearinger LH, Sieving RE, Ferguson J, Sharma V. Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. *The lancet*. 2007;369: 1220–1231.
2. Hindin MJ, Fatusi AO. Adolescent sexual and reproductive health in developing countries: an overview of trends and interventions. *International perspectives on sexual and reproductive health*. 2009;35: 58–62.
3. World Health Organization. *Global accelerated action for the health of adolescents (AA-HA!): guidance to support country implementation*. 2017.
4. Zambia Statistics Agency, Ministry of Health, Zambia., University Teaching Hospital Virology Laboratory, The DHS Program ICF. *Zambia Demographi and Health Survey 2018*. 2020 Jan.
5. Ministry of Health, Zambia. *Adolescent Health Strategy 2017-2021*. 2017.
6. Zulu JM, Goicolea I, Kinsman J, Sandøy IF, Blystad A, Mulubwa C, et al. Community based interventions for strengthening adolescent sexual reproductive health and rights: how can they be integrated and sustained? A realist evaluation protocol from Zambia. *Reprod Health*. 2018;15: 145. doi:10.1186/s12978-018-0590-8
7. World Health Organisation. *Global standards for quality health-care services for adolescents: a guide to implement a standards-driven approach to improve the quality of health care services for adolescents. Volume 1: Standards and criteria*. 2015.
8. World Health Organization. *Making health services adolescent friendly: developing national quality standards for adolescent friendly health services*. 2012.
9. Tricco AC, Langlois E, Straus SE, World Health Organization. *Rapid reviews to strengthen health policy and systems: a practical guide*. World Health Organization; 2017.
10. Langlois ÉV, Daniels K, Akl EA, World Health Organization. *Evidence synthesis for health policy and systems: a methods guide*. 2018.
11. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *International journal of social research methodology*. 2005;8: 19–32.
12. Munn Z, Peters MD, Stern C, Tufanaru C, McArthur A, Aromataris E. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC medical research methodology*. 2018;18: 1–7.
13. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan-a web and mobile app for systematic reviews. *Systematic Reviews*, 5, 210. 2016.
14. Pluye P, Robert E, Cargo M, Bartlett G, O'cathain A, Griffiths F, et al. Proposal: A mixed methods appraisal tool for systematic mixed studies reviews. Montréal: McGill University. 2011;2: 1–8.
15. Moher D, Liberati A, Tetzlaff J, Altman DG, Prisma Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine*. 2009;6: e1000097.

16. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, et al. Guidance on the conduct of narrative synthesis in systematic reviews. A product from the ESRC methods programme Version. 2006;1: b92.
17. Guyatt G, Oxman AD, Akl EA, Kunz R, Vist G, Brozek J, et al. GRADE guidelines: 1. Introduction—GRADE evidence profiles and summary of findings tables. *Journal of clinical epidemiology*. 2011;64: 383–394.
18. UNDP, National HIV/AIDS/STI/TB Council. Zambia:Removing legal and policy barriers for young key populations in the Zambia HIV response- Policy brief. 2019.
19. Ministry of General Education, Government of Sweden, 2gether 4SRHR, UNICEF. Knowledge and use of Sexual Reproductive Health and HIV services among Adolescent Girls and Young Women in Central and Western Provinces: A qualitative knowledge Attitudes and practices study.
20. Human Rights Watch. “We are also dying of AIDS” Barriers to HIV Services and Treatment for persons with disabilities in Zambia. 2014.
21. Ministry of Health, Zambia., National HIV/AIDS/STI/TB Council, UNAIDS. Report on the National Geospatial Data analysis on HIV/SRH Risks and Vulnerabilities of Adolescents and Young people in Zambia. 2020 Apr.
22. Zambia Statistics Agency, Ministry of Health (MOH) Zambia, ICF. Zambia Demographic and Health Survey 2018. Lusaka, Zambia, and Rockville, Maryland, USA.: Zambia Statistics Agency, Ministry of Health, and ICF; 2019.
23. USAID- Discover Health. Technical Update: Using Human Centred Design to build acceptance for PrEP introduction in Zambia. 2020.
24. Armstrong R, Zulu J. Applying the social determinants of health lens to the situation of young key populations in Zambia: what can it tell us about what we could do? *Journal of Global Health Reports*. 2019;3: e2019008.
25. Chanda-Kapata P, Klinkenberg E, Maddox N, Ngosa W, Kapata N. The prevalence and socio-economic determinants of HIV among teenagers aged 15-18 years who were participating in a mobile testing population based survey in 2013-2014 in Zambia. *BMC Public Health*. 2016;16: 789. doi:10.1186/s12889-016-3449-3
26. Mee P, Fearon E, Hassan S, Hensen B, Acharya X, Rice BD, et al. The association between being currently in school and HIV prevalence among young women in nine eastern and southern African countries. *PLoS One*. 2018;13: e0198898. doi:10.1371/journal.pone.0198898
27. Tyler KA, Handema R, Schmitz RM, Phiri F, Wood C, Olson K. Risk Factors for HIV among Zambian Street Youth. *J HIV AIDS Soc Serv*. 2016;15: 254–268. doi:10.1080/15381501.2016.1138178
28. Solomon H, Moraes AN, Williams DB, Fotso AS, Duong YT, Ndongmo CB, et al. Prevalence and correlates of active syphilis and HIV co-Infection among sexually active persons aged 15-59 years in Zambia: Results from the Zambia Population-based HIV Impact Assessment (ZAMPHIA) 2016. *PLoS One*. 2020;15: e0236501. doi:10.1371/journal.pone.0236501
29. Crucitti T, Jespers V, Mulenga C, Khondowe S, Vandepitte J, Buve A. Non-Sexual Transmission of *Trichomonas vaginalis* in Adolescent Girls Attending School in Ndola, Zambia. *Plos One*. 2011;6: e16310. doi:10.1371/journal.pone.0016310

30. Mburu G, Ram M, Oxenham D, Haamujompa C, Iorpenda K, Ferguson L. Responding to adolescents living with HIV in Zambia: A social-ecological approach. *Children and Youth Services Review*. 2014;45: 9–17. doi:10.1016/j.chilgyouth.2014.03.033
31. Hodgson I, Ross J, Haamujompa C, Gitau-Mburu D. Living as an adolescent with HIV in Zambia – lived experiences, sexual health and reproductive needs. *AIDS Care*. 2012;24: 1204–1210. doi:10.1080/09540121.2012.658755
32. Mesic A, Halim N, MacLeod W, Haker C, Mwansa M, Biemba G. Facilitators and Barriers to Adherence to Antiretroviral Therapy and Retention in Care Among Adolescents Living with HIV/AIDS in Zambia: A Mixed Methods Study. *AIDS Behav*. 2019;23: 2618–2628. doi:10.1007/s10461-019-02533-5
33. Mburu G, Hodgson I, Teltschik A, Ram M, Haamujompa C, Bajpai D, et al. Rights-based services for adolescents living with HIV: adolescent self-efficacy and implications for health systems in Zambia. *Reprod Health Matters*. 2013;21: 176–185. doi:10.1016/S0968-8080(13)41701-9
34. St Clair-Sullivan N, Mwamba C, Whetham J, Bolton Moore C, Darking M, Vera J. Barriers to HIV care and adherence for young people living with HIV in Zambia and mHealth. *Mhealth*. 2019;5: 45. doi:10.21037/mhealth.2019.09.02
35. NASTAD Zambia. The legal, Policy, and Socio-Cultural Barriers to HIV-Related Prevention, Treatment, Care, and Support for Key Populations in Zambia. 2015.
36. Mwaba K, Mannell J, Burgess R, Sherr L. Uptake of HIV testing among 15-19-year-old adolescents in Zambia. *AIDS Care*. 2020;32: 183–192. doi:10.1080/09540121.2020.1739214
37. Butts SA, Kayukwa A, Langlie J, Rodriguez VJ, Alcaide ML, Chitalu N, et al. HIV Knowledge and Risk among Zambian Adolescent and Younger Adolescent Girls: Challenges and Solutions. *Sex Educ*. 2018;18: 1–13. doi:10.1080/14681811.2017.1370368
38. Somefun OD, Wandera SO, Odimegwu C. Media Exposure and HIV Testing Among Youth in Sub-Saharan Africa: Evidence From Demographic and Health Surveys (DHS). *Sage Open*. 2019;9: 2158244019851551. doi:10.1177/2158244019851551
39. Mackworth-Young CRS, Bond V, Stangl AL, Chonta M, Wringe A. Coming of age with HIV: a temporal understanding of young women’s experiences in Zambia. *AIDS Care*. 2021;33: 159–166. doi:10.1080/09540121.2019.1709616
40. Mweemba M, Musheke MM, Michelo C, Halwiindi H, Mweemba O, Zulu JM. “When am I going to stop taking the drug?” Enablers, barriers and processes of disclosure of HIV status by caregivers to adolescents in a rural district in Zambia. *BMC Public Health*. 2015;15: 1028. doi:10.1186/s12889-015-2372-3
41. Mackworth-Young CR, Bond V, Wringe A, Konayuma K, Clay S, Chiiya C, et al. “My mother told me that I should not”: a qualitative study exploring the restrictions placed on adolescent girls living with HIV in Zambia. *J Int AIDS Soc*. 2017;20. doi:10.1002/jia2.25035
42. Mackworth-Young CRS, Bond V, Wringe A. Secrets and Silence: Agency of Young Women Managing HIV Disclosure. *Med Anthropol*. 2020;39: 720–734. doi:10.1080/01459740.2020.1764551
43. Mburu G, Hodgson I, Kalibala S, Haamujompa C, Cataldo F, Lowenthal ED, et al. Adolescent HIV disclosure in Zambia: barriers, facilitators and outcomes. *J Int AIDS Soc*. 2014;17: 18866. doi:10.7448/IAS.17.1.18866

44. Okawa S, Mwanza Kabaghe S, Mwiya M, Kikuchi K, Jimba M, Kankasa C, et al. Psychological well-being and adherence to antiretroviral therapy among adolescents living with HIV in Zambia. *AIDS Care*. 2018;30: 634–642. doi:10.1080/09540121.2018.1425364
45. Denison JA, Banda H, Dennis AC, Packer C, Nyambe N, Stalter RM, et al. “The sky is the limit”: adhering to antiretroviral therapy and HIV self-management from the perspectives of adolescents living with HIV and their adult caregivers. *J Int AIDS Soc*. 2015;18: 19358. doi:10.7448/IAS.18.1.19358
46. Denison JA, Packer C, Stalter RM, Banda H, Mercer S, Nyambe N, et al. Factors Related to Incomplete Adherence to Antiretroviral Therapy among Adolescents Attending Three HIV Clinics in the Copperbelt, Zambia. *AIDS Behav*. 2018;22: 996–1005. doi:10.1007/s10461-017-1944-x
47. Stalter RM, Katayamoyo P, Packer C, Banda H, Chen P-L, Mwansa JK, et al. Transitioning to Second-line Antiretroviral Therapy Among Adolescents in Copperbelt Province, Zambia: Predictors of Treatment Switching and Adherence to Second-line Regimens. *Pediatr Infect Dis J*. 2017;36: 768–773. doi:10.1097/INF.0000000000001547
48. Miti S, Handema R, Mulenga L, Mwansa JK, Abrams E, Frimpong C, et al. Prevalence and characteristics of HIV drug resistance among antiretroviral treatment (ART) experienced adolescents and young adults living with HIV in Ndola, Zambia. *PLoS One*. 2020;15: e0236156. doi:10.1371/journal.pone.0236156
49. Butts SA, Parmley LE, Alcaide ML, Rodriguez VJ, Kayukwa A, Chitalu N, et al. Let us fight and support one another: adolescent girls and young women on contributors and solutions to HIV risk in Zambia. *Int J Womens Health*. 2017;9: 727–737. doi:10.2147/IJWH.S142232
50. Muzyamba C, Broaddus E, Campbell C. “You cannot eat rights”: a qualitative study of views by Zambian HIV-vulnerable women, youth and MSM on human rights as public health tools. *BMC Int Health Hum Rights*. 2015;15: 26. doi:10.1186/s12914-015-0067-6
51. Tymejczyk O, Brazier E, Wools-Kaloustian K, Davies M-A, Dilorenzo M, Edmonds A, et al. Impact of Universal Antiretroviral Treatment Eligibility on Rapid Treatment Initiation Among Young Adolescents with Human Immunodeficiency Virus in Sub-Saharan Africa. *J Infect Dis*. 2020;222: 755–764. doi:10.1093/infdis/jiz547
52. Shanaube K, Macleod D, Chaila MJ, Mackworth-Young C, Hoddinott G, Schaap A, et al. HIV Care Cascade Among Adolescents in a “Test and Treat” Community-Based Intervention: HPTN 071 (PopART) for Youth Study. *J Adolesc Health*. 2020. doi:10.1016/j.jadohealth.2020.07.029
53. Hatzold K, Gudukeya S, Mutseta MN, Chilongosi R, Nalubamba M, Nkhoma C, et al. HIV self-testing: breaking the barriers to uptake of testing among men and adolescents in sub-Saharan Africa, experiences from STAR demonstration projects in Malawi, Zambia and Zimbabwe. *J Int AIDS Soc*. 2019;22 Suppl 1: e25244. doi:10.1002/jia2.25244
54. Rosen JG, Phiri L, Chibuye M, Namukonda ES, Mbizvo MT, Kayeyi N. Integrated psychosocial, economic strengthening, and clinical service-delivery to improve health and resilience of adolescents living with HIV and their caregivers: Findings from a prospective cohort study in Zambia. *PLoS One*. 2021;16: e0243822. doi:10.1371/journal.pone.0243822
55. Zuilkowski SS, Henning M, Zulu J, Matafwali B. Zambia’s school re-entry policy for adolescent mothers: Examining impacts beyond re-enrollment. *International Journal of Educational Development*. 2019;64: 1–7. doi:10.1016/j.ijedudev.2018.11.001

56. Müller A, Daskilewicz K, Spencer S, Meer T, Artz L. Inconsistencies in legal frameworks on adolescent HIV and sexual and reproductive health services in five southern African countries. *J Int AIDS Soc.* 2016;19: 105–106. doi:10.7448/IAS.19.6.21264
57. Hoffman S, Mantell J, Wang C, Mushamiri I, Low A. Characteristics of older male partners of adolescent girls and young women (AGYW) in four Eastern and Southern African countries, PHIA 2015 to 2017. *J Int AIDS Soc.* 2020;23. doi:10.1002/jia2.25547
58. Wado YD, Sully EA, Mumah JN. Pregnancy and early motherhood among adolescents in five East African countries: a multi-level analysis of risk and protective factors. *BMC Pregnancy Childbirth.* 2019;19: 59. doi:10.1186/s12884-019-2204-z
59. Müller A, Spencer S, Meer T, Daskilewicz K. The no-go zone: a qualitative study of access to sexual and reproductive health services for sexual and gender minority adolescents in Southern Africa. *Reprod Health.* 2018;15: 12. doi:10.1186/s12978-018-0462-2
60. Petroni S, Steinhaus M, Fenn NS, Stoebenau K, Gregowski A. New Findings on Child Marriage in Sub-Saharan Africa. *Ann Glob Health.* 2017;83: 781–790. doi:10.1016/j.aogh.2017.09.001
61. Chola M, Hlongwana K, Ginindza TG. Patterns, trends, and factors associated with contraceptive use among adolescent girls in Zambia (1996 to 2014): a multilevel analysis. *Bmc Womens Health.* 2020;20: 185. doi:10.1186/s12905-020-01050-1
62. Psaki SR, Soler-Hampejsek E, Saha J, Mensch BS, Amin S. The Effects of Adolescent Childbearing on Literacy and Numeracy in Bangladesh, Malawi, and Zambia. *Demography.* 2019;56: 1899–1929. doi:10.1007/s13524-019-00816-z
63. Althabe F, Moore JL, Gibbons L, Berrueta M, Goudar SS, Chomba E, et al. Adverse maternal and perinatal outcomes in adolescent pregnancies: The Global Network’s Maternal Newborn Health Registry study. *Reprod Health.* 2015;12 Suppl 2: S8. doi:10.1186/1742-4755-12-S2-S8
64. Namukonda ES, Rosen JG, Simataa MN, Chibuye M, Mbizvo MT, Kangale C. Sexual and reproductive health knowledge, attitudes and service uptake barriers among Zambian in-school adolescents: a mixed methods study. *Sex Education-Sexuality Society and Learning.* doi:10.1080/14681811.2020.1832458
65. Wei D, Brigell R, Khadka A, Perales N, Fink G. Comprehensive school-based health programs to improve child and adolescent health: Evidence from Zambia. *PLoS One.* 2019;14: e0217893. doi:10.1371/journal.pone.0217893
66. McCarragher DR, Packer C, Mercer S, Dennis A, Banda H, Nyambe N, et al. Adolescents living with HIV in the Copperbelt Province of Zambia: Their reproductive health needs and experiences. *PLoS One.* 2018;13: e0197853. doi:10.1371/journal.pone.0197853
67. Hewett PC, Austrian K, Soler-Hampejsek E, Behrman JR, Bozzani F, Jackson-Hachonda NA. Cluster randomized evaluation of Adolescent Girls Empowerment Programme (AGEP): study protocol. *BMC Public Health.* 2017;17: 386. doi:10.1186/s12889-017-4280-1
68. Hegdahl HK, Sandøy IF. Effects of economic support and community dialogue on adolescent sexual behaviour: Findings from a cluster-randomized controlled trial in Zambia. *J Int AIDS Soc.* 2020;23. doi:10.1002/jia2.25547
69. Yang X-H, Yuan S, Zhang R, Yu J-F, Nzala SH, Wang P-G, et al. Risky Sexual Behaviors and Associated Factors Among College Students in Lusaka, Zambia. *Arch Sex Behav.* 2019;48: 2117–2123. doi:10.1007/s10508-019-1442-5
70. Austrian K, Soler-Hampejsek E, Behrman JR, Digitale J, Jackson Hachonda N, Bweupe M, et al. The impact of the Adolescent Girls Empowerment Program (AGEP) on short and long

- term social, economic, education and fertility outcomes: a cluster randomized controlled trial in Zambia. *BMC Public Health*. 2020;20: 349. doi:10.1186/s12889-020-08468-0
71. Dake F, Natali L, Angeles G, de Hoop J, Handa S, Peterman A, et al. Cash Transfers, Early Marriage, and Fertility in Malawi and Zambia. *Stud Fam Plann*. 2018;49: 295–317. doi:10.1111/sifp.12073
 72. Austrian K, Soler-Hampejsek E, Duby Z, Hewett PC. “When He Asks for Sex, You Will Never Refuse”: Transactional Sex and Adolescent Pregnancy in Zambia. *Stud Fam Plann*. 2019;50: 243–256. doi:10.1111/sifp.12100
 73. Population Council. Burden of disease and conditions in Zambia affecting adolescents with a focus on disadvantaged adolescents. 2022.
 74. Munakampe MN, Zulu JM, Michelo C. Contraception and abortion knowledge, attitudes and practices among adolescents from low and middle-income countries: a systematic review. *BMC health services research*. 2018;18: 909.
 75. Kangaude G, Coast E, Fetters T. Adolescent sexual and reproductive health and universal health coverage: a comparative policy and legal analysis of Ethiopia, Malawi and Zambia. *Sex Reprod Health Matters*. 2020;28: 1832291. doi:10.1080/26410397.2020.1832291
 76. Nkwemu S, Jacobs CN, Mweemba O, Sharma A, Zulu JM. “They say that I have lost my integrity by breaking my virginity”: experiences of teen school going mothers in two schools in Lusaka Zambia. *BMC Public Health*. 2019;19: 62. doi:10.1186/s12889-019-6394-0
 77. Ndongmo TN, Ndongmo CB, Michelo C. Sexual and reproductive health knowledge and behavior among adolescents living with HIV in Zambia: a case study. *Pan Afr Med J*. 2017;26: 71. doi:10.11604/pamj.2017.26.71.11312
 78. Svanemyr J. Adolescent pregnancy and social norms in Zambia. *Cult Health Sex*. 2020;22: 615–629. doi:10.1080/13691058.2019.1621379
 79. Zulu J, Krugu JK, van Gurp M, Kok M. Prevention or punishment? Teenage pregnancy and child marriage in Chadiza and Petauke, Eastern Zambia.
 80. Hensen B, Phiri M, Schaap A, Sigande L, Simwinga M, Floyd S, et al. Uptake of HIV Testing Services Through Novel Community-Based Sexual and Reproductive Health Services: An Analysis of the Pilot Implementation Phase of the Yathu Yathu Intervention for Adolescents and Young People Aged 15–24 in Lusaka, Zambia. *AIDS and Behavior*. 2021; 1–11.
 81. Chavula MP, Svanemyr J, Zulu JM, Sandøy IF. Experiences of teachers and community health workers implementing sexuality and life skills education in youth clubs in Zambia. *Global Public Health*. 2021; 1–15.
 82. Chirwa-Kambole E, Svanemyr J, Sandøy I, Hangoma P, Zulu JM. Acceptability of youth clubs focusing on comprehensive sexual and reproductive health education in rural Zambian schools: a case of Central Province. *BMC Health Serv Res*. 2020;20: 42. doi:10.1186/s12913-020-4889-0
 83. Kampata L, Sandoy I. INCREASING TRENDS IN ADOLESCENT CHILDBEARING AMONG WOMEN IN ALL EDUCATIONAL GROUPS IN ZAMBIA, BUT OVERALL DECLINE. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 2019;113: S18–S18.
 84. Milimo J, Zulu J, Svanemyr J, Munsaka E, Mweemba O, Sandøy I. Economic support, education and sexual decision making among female adolescents in Zambia: a qualitative study. *BMC public health*. 2021;21: 1–8.

85. Mulubwa C, Hurtig A-K, Zulu JM, Michelo C, Sandøy IF, Goicolea I. Can sexual health interventions make community-based health systems more responsive to adolescents? A realist informed study in rural Zambia. *Reprod Health*. 2020;17: 1. doi:10.1186/s12978-019-0847-x
86. Denison JA, Burke VM, Miti S, Nonyane BAS, Frimpong C, Merrill KG, et al. Project YES! Youth Engaging for Success: A randomized controlled trial assessing the impact of a clinic-based peer mentoring program on viral suppression, adherence and internalized stigma among HIV-positive youth (15-24 years) in Ndola, Zambia. *PLoS One*. 2020;15: e0230703. doi:10.1371/journal.pone.0230703
87. Phillips SJ, Mbizvo MT. Empowering adolescent girls in Sub-Saharan Africa to prevent unintended pregnancy and HIV: A critical research gap. *Int J Gynaecol Obstet*. 2016;132: 1–3. doi:10.1016/j.ijgo.2015.10.005
88. Stamatakis CE, Sumner SA, Massetti G, Kress H, Basile KC, Marcelin LH, et al. Sexual Violence Prevalence and Related Pregnancy Among Girls and Young Women: A Multicountry Analysis. *J Interpers Violence*. 2020; 886260520936366. doi:10.1177/0886260520936366
89. Roman NV, Frantz JM. The prevalence of intimate partner violence in the family: a systematic review of the implications for adolescents in Africa. *Family Practice*. 2013;30: 256–265. doi:10.1093/fampra/cms084
90. Mathur S, Okal J, Musheke M, Pilgrim N, Kishor Patel S, Bhattacharya R, et al. High rates of sexual violence by both intimate and non-intimate partners experienced by adolescent girls and young women in Kenya and Zambia: Findings around violence and other negative health outcomes. *PLoS One*. 2018;13: e0203929. doi:10.1371/journal.pone.0203929
91. Merrill KG, Campbell JC, Decker MR, McGready J, Burke VM, Mwansa JK, et al. Prevalence of physical and sexual violence and psychological abuse among adolescents and young adults living with HIV in Zambia. *PLoS One*. 2020;15: e0235203. doi:10.1371/journal.pone.0235203
92. Merrill KG, Campbell JC, Kennedy CE, Burke VM, Miti S, Frimpong C, et al. “So hurt and broken”: A qualitative study of experiences of violence and HIV outcomes among Zambian youth living with HIV. *Glob Public Health*. 2021; 1–13. doi:10.1080/17441692.2020.1864749
93. Merrill KG, Campbell JC, Decker MR, McGready J, Burke VM, Mwansa JK, et al. Past-Year Violence Victimization is Associated with Viral Load Failure Among HIV-Positive Adolescents and Young Adults. *AIDS Behav*. 2020. doi:10.1007/s10461-020-02958-3
94. Siziya S, Muula AS, Besa C, Babaniyi O, Songolo P, Kankiza N, et al. Cannabis use and its socio-demographic correlates among in-school adolescents in Zambia. *Ital J Pediatr*. 2013;39: 13. doi:10.1186/1824-7288-39-13
95. Agaku IT, Maliselo T, Ayo-Yusuf OA. The relationship between secondhand smoke exposure, pro-tobacco social influences, and smoking susceptibility among nonsmoking Zambian adolescents. *Subst Use Misuse*. 2015;50: 387–393. doi:10.3109/10826084.2014.984848
96. Ng’ombe JN, Nedson NR, Tembo NFP. “Look at Me, I Plan to Quit Smoking”: Bayesian Hierarchical Analysis of Adolescent Smokers’ Intention to Quit Smoking. *Healthcare*. 2020;8: 76. doi:10.3390/healthcare8020076
97. Swahn MH, Ali B, Palmier J, Tumwesigye NM, Sikazwe G, Twa-Twa J, et al. Early alcohol use and problem drinking among students in Zambia and Uganda. *J Public Health Afr*. 2011;2: e20. doi:10.4081/jphia.2011.e20

98. Tyler KA, Handema R, Schmitz RM, Phiri F, Kuyper KS, Wood C. Multi-Level Risk and Protective Factors for Substance Use Among Zambian Street Youth. *Subst Use Misuse*. 2016;51: 922–931. doi:10.3109/10826084.2016.1156702
99. Faydi E, Funk M, Kleintjes S, Ofori-Atta A, Ssbunnya J, Mwanza J, et al. An assessment of mental health policy in Ghana, South Africa, Uganda and Zambia. *Health Res Policy Syst*. 2011;9: 17. doi:10.1186/1478-4505-9-17
100. Davids EL, Adams Tucker L, Wambua GN, Fewster DL, Schlebusch L, Karrim SB, et al. Child and adolescent mental health in Africa: A qualitative analysis of the perspectives of emerging mental health clinicians and researchers using an online platform. *J Child Adolesc Ment Health*. 2019;31: 93–107. doi:10.2989/17280583.2019.1659145
101. Jacob L, Smith L, Haro JM, Stickley A, Koyanagi A. Serious physical injury and depressive symptoms among adolescents aged 12–15 years from 21 low- and middle-income countries. *J Affective Disord*. 2020;264: 172–180. doi:10.1016/j.jad.2019.12.026
102. Kane JC, Murray LK, Cohen J, Dorsey S, Skavenski van Wyk S, Galloway Henderson J, et al. Moderators of treatment response to trauma-focused cognitive behavioral therapy among youth in Zambia. *J Child Psychol Psychiatry*. 2016;57: 1194–1202. doi:10.1111/jcpp.12623
103. Familiar I, Murray L, Gross A, Skavenski S, Jere E, Bass J. Posttraumatic stress symptoms and structure among orphan and vulnerable children and adolescents in Zambia. *Child Adolesc Ment Health*. 2014;19: 235–242. doi:10.1111/camh.12050
104. Davaasambuu S, Hauwadhanasuk T, Matsuo H, Szatmari P. Effects of interventions to reduce adolescent depression in low- and middle-income countries: A systematic review and meta-analysis. *J Psychiatr Res*. 2020;123: 201–215. doi:10.1016/j.jpsychires.2020.01.020
105. Armstrong R, Silumbwe A, Zulu JM. Mental health, coping and resilience among young men who have sex with men in Zambia. *Cult Health Sex*. 2020; 1–15. doi:10.1080/13691058.2020.1788726
106. Hewett PC, Willig AL, Digitale J, Soler-Hampejsek E, Behrman JR, Austrian K. Assessment of an adolescent-girl-focused nutritional educational intervention within a girls' empowerment programme: a cluster randomised evaluation in Zambia. *Public Health Nutr*. 2020; 1–14. doi:10.1017/S1368980020001263
107. Soler-Hampejsek E, Hewett PC, Spielman K, Austrian K. Transitions to adulthood and the changing body mass index of adolescent girls in Zambia. *Ann NY Acad Sci*. 2020;1468: 74–85. doi:10.1111/nyas.14291
108. An R, Nickols-Richardson SM, Khan N, Liu J, Liu R, Clarke C. Impact of Beef and Beef Product Intake on Cognition in Children and Young Adults: A Systematic Review. *Nutrients*. 2019;11. doi:10.3390/nu11081797
109. Soler-Hampejsek E, Hewett PC, Spielman K, Austrian K. Transitions to adulthood and the changing body mass index of adolescent girls in Zambia. *Ann NY Acad Sci*. 2020;1468: 74–85. doi:10.1111/nyas.14291
110. Asamane EA, Marinda PA, Khayeka-Wandabwa C, Powers HJ. Nutritional and social contribution of meat in diets: Interplays among young urban and rural men. *Appetite*. 2021;156: 104959. doi:10.1016/j.appet.2020.104959
111. Kumwenda M, Nzala S, Zulu JM. Health care needs assessment among adolescents in correctional institutions in Zambia: an ethical analysis. *BMC Health Serv Res*. 2017;17: 581. doi:10.1186/s12913-017-2532-5

112. Yoshida K, Hanass-Hancock J, Nixon S, Bond V. Using intersectionality to explore experiences of disability and HIV among women and men in Zambia. *Disabil Rehabil.* 2014;36: 2161–2168. doi:10.3109/09638288.2014.894144
113. Parsons JA, Bond VA, Nixon SA. “Are We Not Human?” Stories of Stigma, Disability and HIV from Lusaka, Zambia and Their Implications for Access to Health Services. *PLoS One.* 2015;10: e0127392. doi:10.1371/journal.pone.0127392
114. Tun W, Okal J, Schenk K, Esantsi S, Mutale F, Kyeremaa RK, et al. Limited accessibility to HIV services for persons with disabilities living with HIV in Ghana, Uganda and Zambia. *J Int AIDS Soc.* 2016;19: 20829. doi:10.7448/IAS.19.5.20829
115. Wickenden A, Nixon S, Yoshida KK. Disabling sexualities: Exploring the impact of the intersection of HIV, disability and gender on the sexualities of women in Zambia. *Afr J Disabil.* 2013;2: 50. doi:10.4102/ajod.v2i1.50
116. Schenk KD, Friedland BA, Sheehy M, Apicella L, Hewett PC. Making the cut: evidence-based lessons for improving the informed consent process for voluntary medical male circumcision in Swaziland and Zambia. *AIDS Educ Prev.* 2014;26: 170–184. doi:10.1521/aeap.2014.26.2.170
117. UNHCR, Women Refugee Commission, AAH, World Vision. Zambia National Refugee Youth Consultation: Summary Report 19th-22nd April 2016. 2016.
118. Magnussen HJA. Childhood disability in rural Zambia: a qualitative study on the use of health care services. 2011.
119. Central Statistics Office. Zambia National Disability Survey 2015. 2018.
120. Kawanga Poniso, Godfrey Chongo. The Plight of People with Disabilities in Zambia. 2017.
121. Southern African Institute for Policy and Research. Removing barriers towards inclusion: Sensitisation and mainstreaming intellectual disabilities issues at a community and national level in Zambia. 2017.
122. International Solutions Group. Sexual and reproductive health and rights of girls and young women with disabilities: Research project to inform a report of the UN Special Rapporteur on the Rights of Persons with Disabilities. Lusaka, Zambia.; 2017.
123. Shanaube K, Schaap A, Hoddinott G, Mubekapi-Musadaidzwa C, Floyd S, Bock P, et al. Impact of a community-wide combination HIV prevention intervention on knowledge of HIV status among adolescents. *AIDS.* 2021;35: 275–285. doi:10.1097/QAD.0000000000002722



