

Review

# Participatory Action Research for Adolescent Sexual and Reproductive Health: A Scoping Review

Zohra S Lassi <sup>1,2,\*</sup> , Ebony Grace Neideck <sup>3</sup>, Bridget Mary Aylward <sup>3</sup>, Prabha H. Andraweera <sup>1,2</sup>   
and Salima Meherali <sup>4</sup> 

- <sup>1</sup> Adelaide Medical School, The University of Adelaide, Adelaide, SA 5005, Australia; prabha.andraweera@adelaide.edu.au  
<sup>2</sup> Robinson Research Institute, The University of Adelaide, Adelaide, SA 5005, Australia  
<sup>3</sup> Faculty of Health and Medical Sciences, The University of Adelaide, Adelaide, SA 5005, Australia; ebony.neideck@student.adelaide.edu.au (E.G.N.); bridget.aylward@student.adelaide.edu.au (B.M.A.)  
<sup>4</sup> Faculty of Nursing, University of Alberta, Edmonton, AB T6G 2R3, Canada; meherali@ualberta.ca  
\* Correspondence: zohra.lassi@adelaide.edu.au

**Abstract:** Introduction: Youth-friendly sexual and reproductive health (SRH) interventions are essential for the health of adolescents (10–19 years). Co-designing is a participatory approach to research, allowing for collaboration with academic and non-academic stakeholders in intervention development. Participatory action research (PAR) involves stakeholders throughout the planning, action, observation, and reflection stages of research. Current knowledge indicates that co-producing SRH interventions with adolescents increases a feeling of ownership, setting the scene for intervention adoption in implementation settings. Objectives: This scoping review aims to understand the extent of adolescents' participation in PAR steps for co-designed SRH interventions, including the barriers and facilitators in co-designing of SRH intervention, as well as its effectiveness on adolescents' SRH outcomes. Methods: Database searching of PubMed, Medline, Embase, CINAHL, Scopus, Web of Science, Google Scholar, and organisational websites was performed, identifying 439 studies. Results: Upon screening, 30 studies (published between 2006–2021) met the inclusion criteria. The synthesis identified that adolescents were involved in the planning and action stages of the interventions, but not in the observation and reflection stages. Although the review identified the barriers and facilitators for co-designing SRF interventions, none of the included studies reported on the effectiveness of co-designing SRH interventions with adolescents; therefore, meta-analysis was not performed. Conclusions: While no specific outcome of the interventions was reported, all papers agreed that adolescent co-designing in ASRH interventions should occur at all stages to increase understanding of local perceptions and develop a successful intervention.

**Keywords:** sexual and reproductive health; participatory action research; co-design; adolescents



**Citation:** Lassi, Z.S.; Neideck, E.G.; Aylward, B.M.; Andraweera, P.H.; Meherali, S. Participatory Action Research for Adolescent Sexual and Reproductive Health: A Scoping Review. *Sexes* **2022**, *3*, 189–208. <https://doi.org/10.3390/sexes3010015>

Academic Editor: Angel L. Montejo

Received: 28 January 2022

Accepted: 25 February 2022

Published: 3 March 2022

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

The period of the maturation and development of adolescents into adulthood is an important phase of one's life that is often accompanied by heightened sexual attention, thought, and experimentation. The chance of contracting sexually transmitted infections (STIs), unintended pregnancies, or early childbearing increases with ill-informed early sexual experimentation [1]. Adolescents across the globe face sexual and reproductive health (SRH) complications, due to a lack of informative services, barriers to such services, social stigmas, laws, and policies [1]. The adolescent period involves significant development; thus, it can be determinative of SRH risks in later life. Consequently, adolescence is an optimal stage for targeted SRH interventions [2,3]. Providing suitable adolescent sexual and reproductive health (ASRH) interventions at the appropriate time and setting makes it possible to improve these statistics in the future.

Co-designing is a participatory action research (PAR) approach that allows community and individual involvement in developing and implementing interventions by providing a personal opinion, expertise, and life experience on the relevant topic [4]. This gives the investigator a deeper understanding of the community's requirements, which might otherwise be misunderstood or misinterpreted [4–7].

Co-designing has been applied to various fields that require scientific understanding to be balanced with the public's knowledge, information, and experience. This has resulted in many valuable improvements, as adolescents and academics benefit from knowledge sharing and exchange [3,6]. Overall, academics view the collaboration with non-academic stakeholders as a rewarding and enriching experience of learning contextual knowledge [8]. Co-designing addresses power imbalances in research partnerships, whereby design partners are involved and treated as equals in all decision-making [5]. Further, studies that involved co-designing with adolescents indicated that adolescent involvement in the planning, design, and development stages ensured the intervention met the adolescent's needs and captured their perspectives, insights, and lived experiences, thus providing a better context [5]. One review of the effectiveness of initiatives to improve adolescent access to and utilization of SRH services in low and middle income countries (LMICs) found that adolescent involvement in project stages created more than a twofold increase in the self-reported use of SRH services, compared to when such initiatives were not made [9]. Although this review was not specific to co-design, it still provides evidence of the benefits of adolescent involvement.

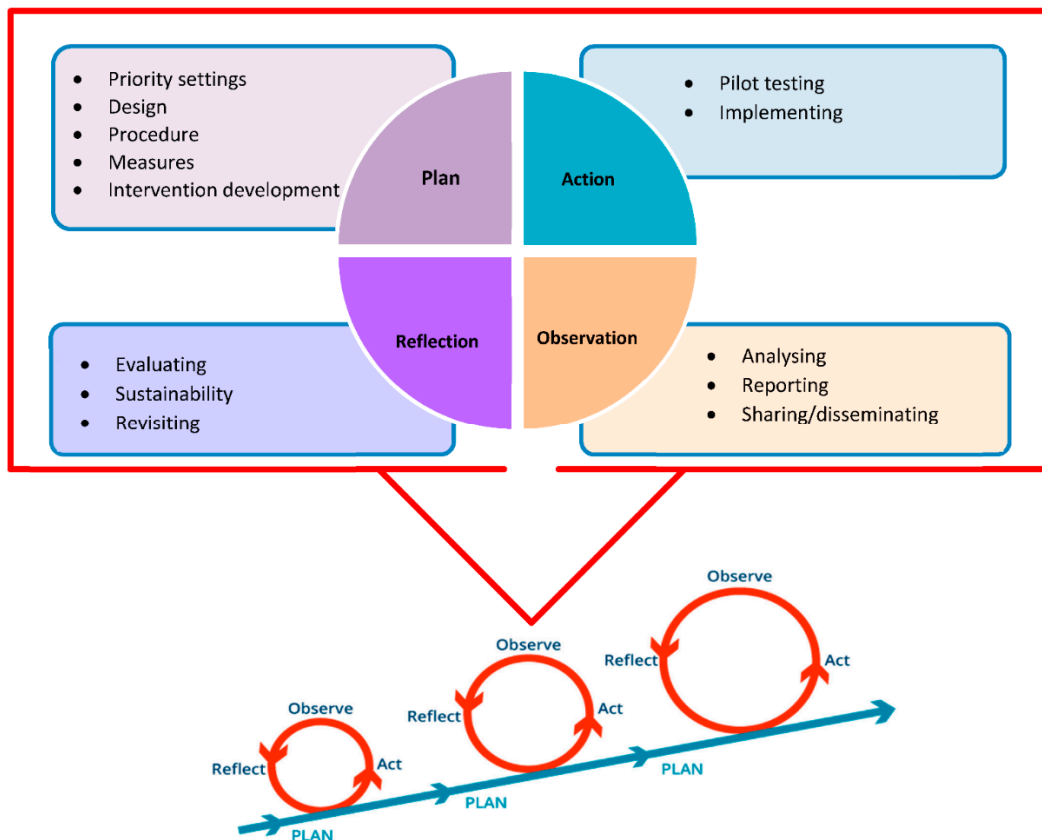
Co-designed health programs and interventions are increasingly being implemented into different settings across the globe to induce health improvements in communities. Consequently, there is a need to understand how these can best be delivered across health systems and diverse settings [6]. There is also a need to understand the barriers to co-designing and how these can be overcome [6]. ASRH issues and interventions can be subject to limited funding and political challenges, similar to any other health issues, in general, that may limit the scale, scope, and methodologic rigor. In turn, this can limit the reproducibility, generalizability, and dissemination of the research [10]. The current understanding of co-designed interventions is that co-producing implementation strategies with non-academic stakeholders enable stakeholder ownership of these implementation strategies, setting the scene for their adoption in implementation settings. However, this has not yet been reviewed systematically [6]; hence, the existence of this systematic review.

This scoping review aims to understand the extent of adolescents' participation in PAR steps for co-designed SRH interventions, including the barriers and facilitators in the co-designing of SRH intervention and its effectiveness on adolescents' SRH outcomes, such as improved contraception use, utilization of sexually transmitted infections (STI)/HIV services, unintended pregnancies, etc.

## 2. Methodology

The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) 2018 guidelines [11] to complete the review (Supplementary Table S1).

The review included all experimental, observational, and qualitative studies, based anywhere globally, that involved adolescent participants aged 10–19 years. Studies that included youth aged up to 24 years were included, as long as the data, relating to the age group of interest, was included. The review focused on studies that involved co-designing ASRH interventions and reported PAR process (Figure 1), barriers, facilitators, and effectiveness of co-designed interventions on improved SRH outcomes. The review was gender-neutral and we avoided gender specific terminologies to avoid stereotyping, as it was interested in specific role of adolescents (regardless of their sex and gender roles) in co-designing interventions for SRH.



**Figure 1.** Steps for participatory action research framework.

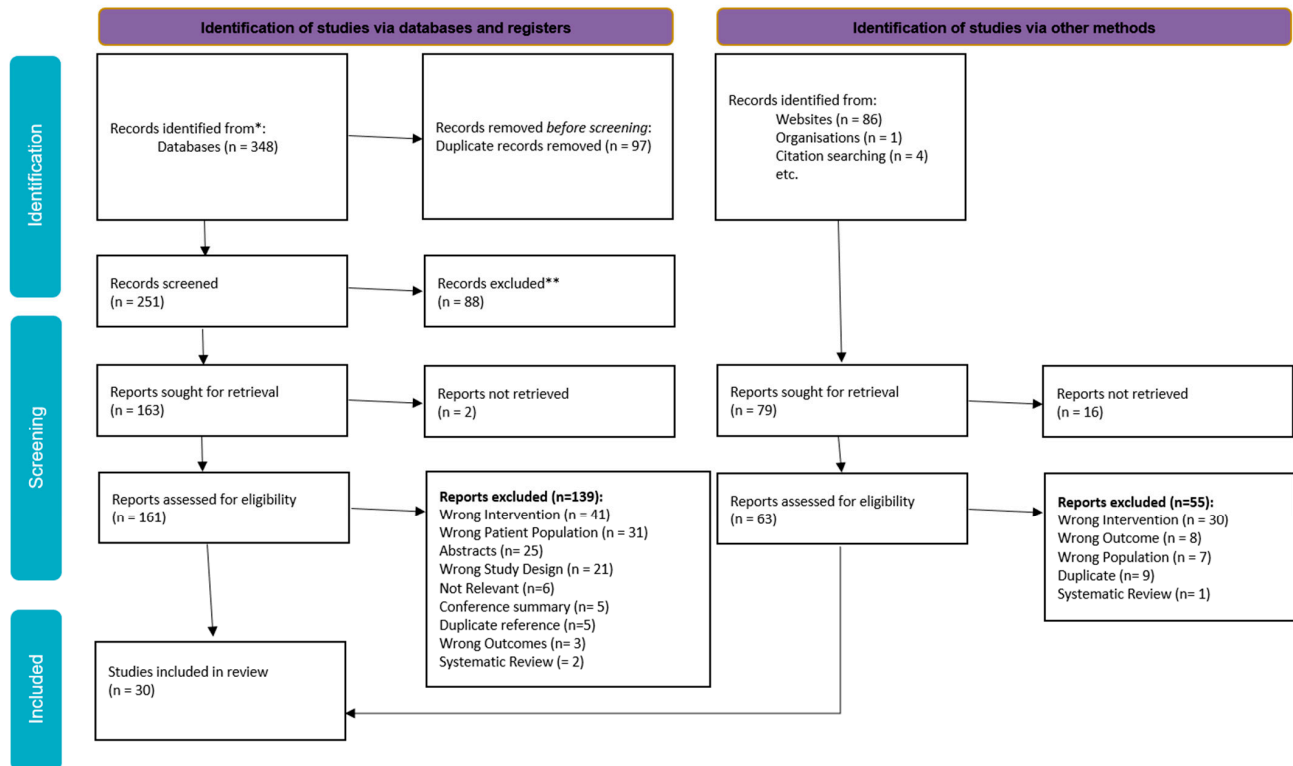
The literature search was conducted on the following electronic databases: PubMed, Medline, Embase, CINAHL, Scopus, and Web of Science, as well as grey literature on Google Scholar and organizational websites. These databases were searched using a combination of natural language vocabulary and controlled terms (subject headings) wherever they were available. Natural language terms were derived from three main concepts: (1) sexual and reproductive health, (2) co-designing of interventions, and (3) adolescents. Publication date, language, and study type restrictions were not applied to increase search sensitivity. Other search methods were employed to retrieve additional evidence. The following search strategy was used to search the databases: “((Sexual) AND (reproductive) AND (health)) AND (adolescent\* OR young OR teen OR teenage) AND (co-design OR codesign OR “community-based participatory research: OR “community-based participatory research” OR “consumer participation” OR “action research” OR “participatory design” OR co-production)”.

All primary research studies from the databases were uploaded on Covidence, a web-based tool that helps to identify studies and involves data-extraction processes [12]. Two reviewers (BA and EN) independently screened all potential articles. In case of disagreement, both reviewers read the paper and discussed it with the senior reviewer (ZL) until they reached a consensus. The reviewers (BA and EN) independently screened all title/abstracts and eligible full-text articles and included papers in this review that satisfied the inclusion criteria.

We extracted relevant data from each study, including the year, study design, setting, target population, sample size, and co-designed activity for SRH intervention, and the results were measured and reported (see Table 1). Two reviewers (BA and EN) extracted data, and the senior reviewer (ZL) resolved the consensus.

### 3. Results

The search identified 439 papers; from those, 97 duplicate papers were removed. After the initial title and abstract screening, 88 papers were excluded, leaving 242 full-texts to be reviewed. Of these, 194 papers were excluded for not meeting our criteria, leaving 30 studies selected for extraction and synthesis (Figure 2), published between 2006–2021.



**Figure 2.** PRISMA Flow diagram.

The characteristics of included studies are reported in Table 1. Of the 30 included studies, two studies involved younger adolescents (aged 10–14 years) [13,14], 14 involved older adolescents (aged 15–19 years) [5,15–27], and 13 studies involved both [13,28–39]; however, one study did not define the age groups [40].

Table 1. Characteristics of included studies.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Assifi 2020 [15]	Urban/community, NSW, Australia	Mixed- methods study	16–19 years Females Stage 2-N = 384 Stage 3-N = 5–10 Stage 4-N = 6	Research advisory group. Participants from diverse professional backgrounds $n = 5–10$ . Service providers. Health professionals with abortion expertise.	Facilitated co-design workshop, create a framework and recommendations to inform adolescent friendly abortion service delivery in New South Wales.
Aventin 2021 [16]	Rural- Khayelitsha, South Africa, and Maseru, Lesetho. Community	Mixed methods	Advisory group: Lesotho: adolescents- 9 (5F/4M) Community 18+ 8 (4F/2M) Expert 18+ 13 (8F/5M) South Africa: Adolescents- 8 (5F/3M) Community 18+ 7 (5F/2M) Experts 18+ 8 (5F/3M) Focus group Lesotho: Adolescents- 28 (15F/13M) Adults- 12 (6F/6M) South Africa: Adolescents- 27 (14F/13M) Adults- 10 (8F/2M)	Advisory group: NGOs (8), health workers (2), teachers (3), principle (1), caregiver (2), community leader (2), ministry of education and training (6), ministry of health (2), UNICEF (1), social workers (2), department of health (1), western cape education department (5). Focus group: Caregivers (5), councillors (2), pastors (2), teachers (4), police officer (1), health worker (1), community leader (1), nurses (2), NGO (1), social worker (1).	Systematic and collaborative process ADVISORY GROUPS Collected primary data from 12 focus group discussions (6 in each country), eight with 55 adolescents and four with 22 adult participants. - to consult on how best to: (a) engage with the broader community for a successful project; (b) address culturally-sensitive issues; and (c) adapt, as needed, the educational pedagogies for local contexts. - Indicate what changes need to be made to the original intervention informing adaptation, implementation, and evaluation plans. No duration stated.
Cense 2020 [28]	Dutch high school The Netherlands	Mixed methods	Adolescents aged 12–18 N = 300	17 young peer researchers.	Short semi-structured interviews to explore the range of issues connected to how pupils experienced sexuality education at school. Focus group discussions to explore these issues. Photovoice sessions used to create a more open space for pupils to reflect on how sexuality education could be.

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Cook 2021 [17]	Wollongong (NSW, Australia) School/rural	Mixed methods	15–25 years <i>n</i> = not mentioned	Workshop leaders.	Condom-mapping workshops were held, and 11 ‘perfect’ condom maps were generated. Groups of young people ranged from two to five people per map. Participants sat around a large paper outline of a condom. Participants were asked to imagine their ‘perfect’ condom and to illustrate their ideas on the condom map, using both written and visual elements.
Cordova 2020 [29]	Michigan, USA	Mixed methods	13 and 21 years N = 50	Clinicians clinic director staff.	Youth leadership council involved in: <ul style="list-style-type: none"> <li>• preparing and submitting the proposal to fund this study;</li> <li>• developing the study design and disseminating the study findings.</li> <li>• identifying the target population;</li> </ul> Youths participated in the intervention in a reserved room with internet connection for approximately 30 min, while they waited for their health appointment.
Decker 2020 [13]	Community, rural, Fresno County, California, USA	cluster randomized controlled trial	1260 youth ages 13–19 years	None stated.	October 2017 and ended in March 2020 Development: <ul style="list-style-type: none"> <li>• Through a series of workshops, youth brainstormed ideas for intervention content and design and developed rapid prototypes alongside the design team. Youth then reviewed ideas and provided feedback on multiple design and content iterations.</li> </ul> Participants in the intervention group are asked to complete a survey on the last day, after all intervention activities have been completed.

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Fongkaew 2006 [41]	Public and Private schools Chaing Mai Province, Thailand	Mixed methods	42 youth leader trainers or senior youth leaders (SYLs), 16 males and 26 females; 104 junior youth leaders (JYLs), including 38 males and 66 females, studying in Grade 7 at 12 schools; 2300 students in Grades 5–7 at 12 schools. 1159 males and 1141 females.	Youth leader trainers or senior youth leaders ( $n = 42$ ), 16 males and 26 females; Junior youth leaders ( $n = 104$ ), including 38 males and 66 females, studying in Grade 7 at 12 schools. Teacher ( $n = 46$ ) from 12 schools, 11 males and 35 females; Parents. Other stakeholders including school administrators, school committee members, parent representatives and public health personnel.	Youth-adult partnership with schools. Youth leader trainers developed three curricula for SRH education and HIV/AIDS prevention on (1) leadership; (2) rights, duties, and responsibilities; and (3) HIV/SRH. YLTs attended skill training camps, rehearsed, and practiced being YLTs and served as trainers and mentors for YYLs.
Garwick 2008 [30]	Minneapolis and St. Paul, Minnesota, USA Urban/community	Mixed methods	148 Native youth 13–15 and 16–18 years	Native community leaders and project consultants NTV research team included two faculty, a project coordinator from the University of Minnesota, and seven community consultants The project coordinator and community consultants (four adults; three youth, 18–21 years).	Group discussion and questionnaires that took about 2 h. Focus group discussions co-led by an adult and youth native project consultant of the same gender as the participants in community-based organizations. The adult facilitator guided the focus group discussion using an interview guide containing core and probe questions. The youth facilitator captured participant ideas on a poster-sized flip chart and asked clarifying questions.
Gilbert 2021 [5]	Darwin, Australia	mixed methods	Youth working group (YWG): 4 Aboriginal and Torres Strait Islander and 3 non-Indigenous youth aged 18–25 years.	Clinicians Researchers Students working in the field of Aboriginal and Torres Strait Islander health and/ or sexual reproductive health.	Four 90 min consultations with YWG, 5 to 10 participants, with one researcher. YWG members shared their current understandings of preconception health, experiences of preconception care and how they currently obtain related health information. YWG members identified components of preconception health identified in q1 they would like to know more about and which components they felt were most important. YWG members asked what they believe are the strengths and weaknesses of current resources, what were the most useful sources of information and what resource features or functions would best suit their needs. Preferences for graphic design and illustrations were also discussed.

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Gill 2016 [18]	Local youth outreach centre USA The Ottawa Hospital and St Mary's Youville	Prospective qualitative community-based participatory research Nine-step validated qualitative participatory approach that combined documentary photography with focus groups	Ages 15–25 years	Key stakeholders at outreach centre.	<p>Stage 1: Reviewing the objectives of the study and the photovoice method; brainstorming with the participants on the various structural and biological factors that affect reproductive and sexual health; training on the use of the disposable camera; and the ethics and safety of photography and the use of a third-party release form for individuals captured in photographs</p> <p>Stage 2: Occurred approximately 6–8 weeks later. This was to provide an opportunity for the participants to return their completed package, as well as for the researchers to print the photographs for the subsequent session.</p> <p>Participants had an opportunity to select approximately 10–15 pictures that they believed illustrated their perspective on reproductive and sexual health issues.</p> <p>The selected photographs were transferred to a laptop and each photograph was an interpretation by each participant, as it related to the key objectives of this study.</p> <p>Participants discussed each other's photographs as a group and identified common key themes and how to best use their pictures to develop interventions to promote reproductive and sexual health among their peers.</p>
Guerrero 2020 [31]	Peru (Lima, Ayacucho, and Loreto) rural community	Content development	<p>STAGE 1: 68 13–24-year-old Aged 13–17 (22F/10M) Aged 13–24 (23F/13M)</p> <p>STAGE 2: No adolescents involved</p> <p>STAGE 3: 104 adolescents (52% F/48% M)</p>	Adult advisers.	<p>Six community consultations in the three study sites, with two meetings at each site with the following structure: one meeting with 13–17-year-old females and males and an adult adviser; and one meeting with 18–24-year-old females and males and an adult adviser.</p> <p>Development of short message services—no adolescent involvement.</p> <p>A total of 12 focus groups to validate SMS content each group of participants evaluated 36–37 SMS (146 SMS in total), each adolescent received a form to rate each SMS, ranging from very bad (1 point) to very good (4 points).</p>



Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Haruna 2019 [32]	Three secondary schools from Dar es Salaam, Tanzania	Quasi-experimental randomized controlled trial research design	348 secondary school participants (students) between 11 and 15 years of age There were 193 boys (55.5 per cent) and 155 girls (44.5 per cent)	Paediatricians, sexual and reproductive health specialists, sexual health teachers from participating schools, computer, information science specialists (including the game designer, who is a computer engineer), and the targeted end-users themselves (secondary school students in Dar es Salaam).	The evaluation of the effectiveness of iterations of the game was done using adolescent sexual health literacy tests and the validated Motivation, Attitude, Knowledge and Engagement framework. The whole process of game design, testing, evaluation, and refinement were underpinned by the activity theory and participatory design (PD) research.
Holiday 2020 [33]	Community, American southern states	Mixed methods	Research phase: <ul style="list-style-type: none"> <li>Six focus groups (5 teens and 1 adult)</li> </ul> 30 teens all together <ul style="list-style-type: none"> <li>expert panel of six teens</li> </ul> Implementation phase: recruited 431 teens and enrolled 246 (57%) into the project. Among them, 178 (72%) completed all sessions. 14–18 years	Six adults in the focus groups Parents / guardians	Six focus groups were held with both teens and parents/guardians of teens. A total of 48 months (4 years). <ul style="list-style-type: none"> <li>The focus groups were designed to determine health issues of concern for teens, their HIV and STI prevention knowledge, attitudes regarding HIV and STIs, their HIV and STI prevention sources of information, what they thought teens should learn during the intervention, and preferred characteristics related to intervention delivery.</li> </ul> Based on the information from the focus groups and the expert review panel, modifications were made to include more interactive activities.
Hong 2010 [14]	China Public middle school/rural	Mixed methods	10–14 years Males & females N = 102	Teachers = 15 Parents = 12	Program: <ol style="list-style-type: none"> <li>Need identification with CWG.</li> <li>Designing the content and activity of the program.</li> <li>Implementing the program.</li> <li>Evaluating and critiquing the program.</li> </ol>
Hubert 2021 [34]	Urban communities in the states of Mexico and Morelos,	Mixed methods	45 participants (23 women and girls and 22 men and boys) aged 12 to 19	E-learning: three exploratory workshops, no exact number of participants. Online chat: 21 including thematic and academic experts, public officials, members of civil society, and health personnel involved in SRH for adolescents.	Four focus groups (FGs) two FGs comprised adolescents aged 12 to 14 and two comprised adolescents 15- to 19-years old; each age group was divided by sex.

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Ivanova 2016 [35]	Latin America (Bolivia, Ecuador, and Nicaragua) rural/community	Mixed methods	9 adolescents 10–19 years	10 parents 3 health care providers 3 friends of youth/health promoters 6 community leaders 3 country implementers 3 project leaders 3 consortium management	18 in-depth interviews and 21 focus group discussions with stakeholders and beneficiaries. Data were collected through key informant interviews (KIIs) and focus group discussions (FGDs) with the key stakeholders of CERCA—adolescents, parents, teachers, community leaders, peer educators, health care providers, project leaders at the country level, implementers at the country level and the international consortium management team
Jaworsky 2013 [19]	Ontario, Canada	Mixed methods	18 youth (aged 16–28 years) sexual health peer educators	None stated	<ul style="list-style-type: none"> <li>Youth researchers conducted 17 semi-structured interviews in person or by telephone.</li> <li>Participate in interviews to discuss peer education programs and evaluation.</li> <li>Three experienced peer sexual health educators were hired as youth researchers and trained to develop literature reviews on peer sexual health education, conduct interviews with youth peer educators, analyse the interview data using qualitative data analysis software, write abstracts, present at conferences, and participate in manuscript development.</li> </ul> <p>The youth researchers conducted 17 semi-structured interviews in person or by telephone. One interview involved two interviewees from the same organization, for a total of 18 interview participants.</p>
Jones 2012 [36]	School rural, Kabarole District, western Uganda	Mixed methods	51 students (25F/26M) (age 13 to 18, average 15.6 years), 24 from School A and 27 from School B	School administrators and staff	Focus group discussions including students and teachers from two secondary schools in a rural district of western Uganda. Semi-structured focus groups and interviews and through meeting artefacts, including notes, flip charts, lesson plans and observations. A total of almost 25 h were recorded and transcribed.

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Lofton 2020 [37]	Community, sub-Saharan Africa	Mixed methods	24 youth, ages 13–17 (12 males and 12 females)	Two adult facilitators per photovoice session, 12 in total	<p>Youth used a systematic action planning process to develop action plans.</p> <ul style="list-style-type: none"> <li>Eight 2-hr sessions (16 hr of group activities plus the hours each pair devoted to taking pictures).</li> </ul> <p>First, the youth selected the photographs that they deemed most pertinent to the discussion. Then they contextualized the photographs through their discussions. Finally, the youth codified their ideas through the pile sorting activity, which allowed them to identify themes and rank these in terms of priorities. They then used a systematic action planning process, described in Results section, to develop an action plan for each prioritized theme. Youth also had to identify the target for their solution, specifically which stakeholders in the community will help them carry out the plan.</p>
Marinkovich 2014 [38]	Kisumu, Kenya	Mixed methods	40 adolescents (13–17 years) Living with HIV	Co-researchers/peer leaders	Participant-generated data was collected in the form of interviews and focus groups. Interviews and focus groups were voice-recorded, transcribed and when necessary, translated. The research team interviewed 40 participants through three individual interviews and seven focus groups.
Markus 2012 [20]	Wind River Wyoming, USA Wind River UNITY group	Mixed methods	6 co-researchers 18- and 19-year-old AI/IN	Wyoming Health Council	<p>Designing the content and activity of the program.</p> <p>In the photovoice project, the model provided a way for the participants to think about their project in terms of its potential to empower them, as individuals, to help them develop and sustain healthy relationships, and, in turn, to advocate for themselves in their communities, institutions, and even in society at large.</p> <p>Aided in analysis of each co-researchers photovoice stories.</p>
Newby 2017 [21]	UK Urban/school	Mixed methods	10 young people aged 11 to 16 years (making the YPPB) 13- to 19-year-old N = 24	Two health psychologists: A public health consultant A project manager 12 professionals from a variety of services	<ul style="list-style-type: none"> <li>Youth groups met weekly;</li> <li>Two attended monthly project steering group meetings;</li> <li>Focus groups were asked about perceived barriers and facilitators to using sexual health services. This contributed evidence to the need's assessment.</li> </ul>

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Nolan 2020 [40]	Community, urban Kigali, peri-urban Ruhango, and peri-urban Butare Rwanda	Cluster randomized controlled trial	Design aspect N = 600 Control trial: 100 students per school, for a total of 6000 students in the study.	Parents Teachers Community leaders, including some religious leaders Health care providers Control trial: 60 schools in 8 districts in Rwanda	<p>The first phase, conducted from 2016 to 2019. Design Research</p> <ul style="list-style-type: none"> <li>- Three rounds of initial design research through interviews and small-group discussions with 212 youth.</li> <li>- Typically ranged from 45 to 60 min.</li> </ul> <p>The interactive format of each session included activities such as roleplay, crafting, and card sorting. Prototyping: Youth Having users (adolescents) react to a tangible idea in the form of a prototype, rather than abstract concept.</p> <ul style="list-style-type: none"> <li>• Included 31 girls aged 10–23 and 5 boys aged 15–17.</li> <li>• Nine prototypes were tested.</li> <li>• Through 42 semi-structured interviews, 23 small group discussions and a co-design workshop, we engaged 63 providers, 4 youth coordinators, 12 boys, and 33 girls.</li> <li>• Youth, parents, and healthcare providers gave feedback via interviews and small group discussions on these first-round prototypes.</li> </ul> <p>Product Development and User Testing</p> <ul style="list-style-type: none"> <li>• 237 users (85 boys, 87 girls, 23 parents or school administrators, and 51 pharmacists) in testing the emerging products through a combination of individual interviews and small group discussions and developed a plan for implementing the products in schools and pharmacies.</li> </ul>

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Patchen 2020 [22]	District of Columbia (DC) and Birmingham, Alabama (AL)	Mixed methods	African American Males and females aged 15–21 N = 86 6 individuals, 3 males and 3 females 26 youths participated in usability testing, 54 individuals 23 from AL and 31 from DC participated in focus groups	Gaming experts with graduate and undergraduate degrees programmed the game with assistance from graphic artists, script writers, and audio/visual specialists.	Initial design and features of the game were driven by four meetings with the youth advisory board, where the initial game prototype—an initial version of the game—was developed and refined based on feedback obtained after each meeting. The advisory board then played the prototype for at least an hour and provided feedback on content, artwork, and design, minigames, dialogue, and entertainment value. All participants tested the game prototype and completed the system usability scale (SUS). Possible scores range from 0 (not usable) to 100 (perfectly usable). Focus groups with participants to guide additional development, to the game.
Pensak 2020 [23]	USA (Connecticut) urban/school	Mixed methods	Phase 1: 15 adolescents Phase 2: 24 participants of 15- to 17-year-old	Parents (of adolescents involved)	Phase 1: Focus group sessions to identify key themes and specific domains of impact Phase: 2 - Played the video game weekly for 6 weeks; - 12-week follow-up.

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Shahmanesh 2021 [24]	Community, rural south Africa uMkhanyakude district of KZN waZulu-Natal (KZN).	Mixed methods	18–30 years	Two teams of four social science researchers	<p>Between March 2018 and September 2019</p> <p>Leadership training:</p> <ul style="list-style-type: none"> <li>Participants underwent training which covered, youth development, HIV and sexual health information, HIV counselling and testing course, confidentiality, ethics, and research methods.</li> </ul> <p>Participatory Workshop to Develop the Logic Model for the Theory of Change:</p> <ul style="list-style-type: none"> <li>Participants were divided into seven mixed gender small groups of 6–11 individuals according to the proximity of their areas of residence.</li> <li>Critically engage with and brainstorm practical approaches (through a medium of their choosing, e.g., role play, pictures, or story telling) to mitigate the particular drivers of HIV and poor engagement with HIV care that the vignette signified.</li> </ul> <p>A third participatory workshop was conducted to discuss and rank the challenges to implementation and refine the intervention and ToC.</p>
Shegog 2017 [39]	USA (American Indian/Alaska Native (AI/AN)) rural/school	Mixed methods	Phase 1: AI/AN Youth ( $n = 80$ ) ages 9–16 years Phase 3: AI/AN Youth ( $n = 45$ ) ages 11–15 years	Parents Health educators Health care providers Community members adult stakeholders ( $n = 27$ )	<p>Phase 1: Gain their perspectives on needed adaptations of of IYG-Tech.</p> <p>Phase 3: Usability testing of NATIVE-IYG tech.</p>
Simuyaba 2021 [25]	Community rural, Zambia	Mixed methods	230 adolescents and young people 15–24 years	21 adults Adults (parents/guardians) community gate keepers and health committee members	<p>Data were collected through focus group discussions, in-depth interviews, and observations.</p> <p>Between November 2018 and March 2019:</p> <ul style="list-style-type: none"> <li>10 focus group discussions (FGDs), 11 in-depth interviews (IDIs) and observations.</li> </ul> <p>within FGDs and IDIs were participatory activities, including community mapping, concept mapping and ranking.</p>

Table 1. Cont.

Study Name	Country/Setting	Study Design	Participants and Sample Size	Other Stakeholders	Co-Designing Activities
Wood 2016 [26]	Schools, south Africa	Mixed methods	24–11 graders (14F/10M)	Researcher from community	<p>Data were generated through two purposive discussions with the participants.</p> <p>Discussions with the participants, led by a young researcher from their community rather than by (researchers), to encourage openness and honesty.</p> <p>The peer educator participants also decided to gather data from other youth in the school by means of short open-ended questionnaires.</p> <p>Individual interviews were taped and transcribed verbatim, and the peer educators synthesised the data they gathered by means of the questionnaires into narratives.</p>
Zaleski 2015 [27]	USA (Illinois) Rural/community	Mixed-methods	Twenty youth leaders 84 interviewees, 16–22 years	not mentioned	<p>Conducted four one-on-one interviews with their Chicago peers for a total of 80 individual interviews.</p> <p>Youth leaders created and disseminated surveys of their personal networks, including schools and colleges, and ICAH disseminated to national networks, including partnering organizations, movement building organizations, and school systems across the country that ICAH works with (convenience sample).</p> <p>Youth leaders participated in 1 in person focus group, facilitated by the youth education coordinator, which focused on connecting the online comfort-assessment survey to positive sexual decision-making among youths.</p>

The studies were based in a range of different settings. Approximately half ( $n = 16$ ) of the studies were conducted in high-income countries (HIC) [5,13,15,17–23,27–30,33,39], and the other half ( $n = 14$ ) was conducted in low- and middle-income countries (LMIC) [14,16,24–26,31,32,34–38,40,41]. There were nine from the USA [13,20,22,23,27,29,30,33,39], three studies from Australia [5,15,17], two each from Canada [18,19], and South Africa [24,26], one each from China [14], Kenya [38], Mexico [34], Peru [31], Rwanda [40], Tanzania [32], Thailand [41], The Netherlands [28], the UK [21], Uganda [36], and Zambia [25]. There were three multi-country studies (South Africa and Lesotho) [16], (Bolivia, Ecuador, Nicaragua) [35], and sub-Saharan Africa [37].

Of those studies that defined settings, 12 studies based in an urban setting [15,18,19,21,23,28,30,32–34,40,41], with six of those conducted in schools [21,23,28,32,33,41] and six in community [15,18,19,30,34,40], as well as 12 studies in rural settings [13,14,16,17,24,25,27,31,35–37,39], with four of those based in schools [14,17,36,39] and eight in community [13,16,24,25,27,31,35,37].

Sample sizes ranged from 9 to 2643 participants. Of all the included studies, 2 were experimental studies [13,32], 23 were observational or qualitative [14,16,18–26,29–31,33–41], and 5 were mixed methods [5,15,17,27,28].

**Participatory action research (PAR) framework:** We used the PAR framework to assess the studies and synthesize the data. The adolescents were involved in the planning and action stages of the implementation, through various co-designing ways. Some used one method and others used a combination of co-designed workshops, focus group discussions, semi-structured interviews, in-depth interviews, photovoice sessions, and youth advisory committees or youth working groups/youth club meetings. The PAR framework for co-designing was used for preparing intervention programs for abortion [15], sex education material [16,21,23,27,28,31,32,41], contraception [17,40], risky sexual behaviour leading to STI/HIV [14,18,20,22,24,25,29,33,37–39], adolescent pregnancy [30,34,35], preconception health [5], and peer education program [19,26,36]. Each of the included studies was assessed to understand the stages of PAR incorporated in co-designing SRH interventions for adolescents.

**Planning:** Studies have reported several different ways of involving adolescents in the planning phase. A study reported that the youth leadership council involved preparing and submitting the proposal to fund the research, identifying the target population, developing the study design, and disseminating the study findings [29]. Another study, through a series of workshops, involved youth in brainstorming ideas for intervention content and design and developed rapid prototypes alongside the design team [13]. Adolescents were also utilised in developing SRH education and HIV/AIDS prevention curriculum [41] and provided insight into what they would like to gain from the intervention [19,24,38].

**Action:** Action involves adolescents co-designing the pilot testing and actual implementation. The studies involved adolescents in one-on-one semi-structured interviews to gain an in-depth understanding of the adolescent experience and care trajectories [15] and explore the range of issues connected to how pupils experienced sexuality education at school [28]. Additionally, they built advisory groups to consult on how best to engage with the broader community for a successful project, address culturally-sensitive issues, and adapt the intervention [13,30]. They also shared their knowledge on HIV and STI prevention, attitudes regarding HIV and STIs, and self-stigma. Adolescents feel fear, as well as alone, and some are in denial about their status [19,33,38]. On the other hand, adolescents were involved in the implementation phase of a few studies, where they facilitated the condom-mapping workshops, prototype testing, and supplied feedback on improvements [22,24,25,31–34,39,40].

**Observation:** Only one study reported involving the youth leadership council in disseminating the study findings [29].

**Reflection:** No studies involved adolescents in the reflection stages.

**Barriers:** Twenty-one studies identified barriers to co-designing SRH interventions, including adolescents confidentiality concerns regarding the sharing of their personal informa-



tion [21,34], cultural taboos, culturally appropriate communications [5,14,16,20,22,27,35,37], stereotyping adolescence, and making assumptions or judgments [26,28]. Additional barriers were voiced to potentially negative community reactions [39] and access to health care professionals and information [31,35,36]. Barriers regarding external factors included fear due to parents being undocumented immigrants [23], lack of safe space, poor transport, and misinformation from caregivers [18,19,24,33,40].

Facilitators: Twenty-two studies identified facilitators to co-designing, including cultural adaptation [16,30,39], culturally relevant content [20,23], a reliable, professional, and friendly tone of researchers [31,36], and a safe atmosphere [24,28,32]. Furthermore, peer navigators were seen as facilitators of co-designing as adolescents were more comfortable sharing SRH issues, such as condom use, with their peers rather than adults. Additional facilitators identified include reliable content [31,32], adolescents feeling as though their involvement was effective in addressing critical problems [32], and a continuous feedback loop with community inputs [33]. Four studies found that using technological devices was useful to overcome the barriers of remoteness and poor transport and effective use of technologies in remote areas [34,35,40]. Further facilitators were identified as engaging youth as critical informants [5,18,19,25,26,37,41], and interventions that support school policy, values, standards, and behavioural expectations facilitated co-design partnerships [14,41].

Effectiveness of co-designing of SRH interventions: The studies did not report on the effectiveness of co-designing of SRH interventions with adolescents; therefore, meta-analysis was not performed.

#### 4. Discussion

This review aimed to understand adolescents' participation in PAR for co-designed ASRH interventions. The studies included in this review collectively indicate the benefits of co-designing ASRH interventions and different ways adolescents can be involved. Following the PAR framework, adolescents were engaged in developing SRH interventions through the planning and action stages. During the planning aspects of the interventions, adolescents were involved in preparing and submitting the proposal [13,29]. This information was provided by adolescents' involvement in youth leadership groups and workshops, which aided the design team in the rapid development of the intervention [13,29].

The information and insight provided by the adolescents allow the primary research to gain an improved understanding of their current knowledge on SRH topics and what they want to gain from the intervention [19,24,38,41]. Throughout the action stages, adolescents were involved in trialing, collecting data, questioning fellow adolescents, and other pilot testing interventions. Adolescent-led, semi-structured, one-on-one interviews, group discussions, and advisory groups were used to explore a range of SRH issues and consult on how best to engage with the broader community for a successful project to address culturally-sensitive issues [13,28,30]. Through the implementation and troubleshooting of the interventions, adolescents were able to supply feedback and improvements to adapt to the intervention [24,25,31–34,39,40]. Only one study planned on involving the adolescent in the observation stage, through a youth leadership council that was involved in disseminating the study findings, although this stage of the intervention had not yet occurred at the time of publication [29]. However, no studies involved or mentioned the future involvement of adolescents during the reflection stages.

Although the age groups, number of participants, and setting of the studies were identified, there was no difference in the extent to which adolescents were involved between the study characteristics. The only identified difference was that smaller participation groups allowed for slightly more detail in their explanations of their current knowledge on ASRH and what knowledge they wanted to gain [19,24,38,41]. Although these findings indicate that adolescents can be successfully involved in the planning and action stages of the PAR framework, the collective theme of the included studies concluded that with the development of a SRH intervention and a greater understanding of local perspectives, adolescents play a vital role in co-designing ASRH interventions.

Furthermore, this review identified many barriers and facilitators to co-designing ASRH interventions. Barriers stemming from cultural and social influences, judgment, and taboos were highlighted throughout the studies [16,20,23,30,39]. However, the physical barriers, relating to remote communities and poor transport, identified in some studies were directly identified by other studies and used technology to connect and overcome geographical and transportation limitations [18,19,24,33–35,40]. An overarching facilitator of the studies was that the research was conducted in a friendly and professional manner, as well as to remind the adolescents that they are in a safe environment at all times [24,28,31,32,36]. This review provided a broad insight into the barriers and facilitators associated with co-designing ASRH intervention during the planning and action stages of the PAR framework, which can be used to inform future research.

Another objective of this review was to assess the effectiveness of co-designing on adolescents' SRH outcomes. However, as the identified studies did not report on the effectiveness of co-designing ASRH interventions, this objective could not be met.

To the best of our ability, we believe that this review is thorough, regarding adolescents' involvement in PAR for co-designed ASRH interventions. We believe we have included all possible published studies, concerning the topic, as we have conducted extensive literature searching on multiple databases and grey literature sites, as well as title searching of included studies. Potential biases were not identified, and no quality assessment was performed on these studies, as it was a scoping review. To identify potential bias, an investigation should occur to see if the author and/or primary researcher of each study have the potential of personal gain for the success of the intervention. No previous systematic reviews exist, concerning PAR for co-designed ASRH interventions; therefore, we could not determine whether there are any discrepancies within the findings and if they agree or disagree with previous reviews.

## 5. Conclusions

This review aimed to understand adolescents' participation in PAR for co-designed ASRH interventions, including the barriers and facilitators, and assess the effectiveness of co-designing on adolescents' SRH outcomes.

The collective theme of the included studies concluded that with the development of a SRH intervention, as well as a greater understanding of local perspectives, adolescents play a vital role in co-designing ASRH interventions.

As there is no current systematic review on this topic, it is suggested that the barriers and facilitators, verbalised by the adolescents, be accommodated in future research to improve the effectiveness of the interventions. Future studies should also involve adolescents in these interventions' observation and reflection aspects, in order to complete the PAR cycle. Furthermore, future systematic reviews should assess the outcomes of these designed interventions documented to assess their effectiveness.

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/sexes3010015/s1>, Table S1: PRISMA-SR Checklist.

**Author Contributions:** Conceptualization, Z.S.L. and S.M.; methodology, Z.S.L.; software, Z.S.L.; data curation, E.G.N. and B.M.A.; writing—original draft preparation, Z.S.L., E.G.N., B.M.A. and P.H.A.; writing—review and editing, Z.S.L.; supervision, Z.S.L. All authors have read and agreed to the published version of the manuscript.

**Funding:** No funding has been received for this work. Zohra Lassi is supported by an NHMRC Australia Public Health and Health Services Early Career Research Fellowship (AP1141382).

**Institutional Review Board Statement:** Not applicable. This review did not require ethical clearance.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The corresponding author can be contacted for detailed data extraction sheets for all the included studies.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Salam, R.A.; Faqqah, A.; Sajjad, N.; Lassi, Z.S.; Das, J.K.; Kaufman, M.; Bhutta, Z.A. Improving adolescent sexual and reproductive health: A systematic review of potential interventions. *J. Adolesc. Health* **2016**, *59*, S11–S28. [[CrossRef](#)] [[PubMed](#)]
2. Chandra-Mouli, V.; Lane, C.; Wong, S. What does not work in adolescent sexual and reproductive health: A review of evidence on interventions commonly accepted as best practices. *Glob. Health Sci. Pract.* **2015**, *3*, 333–340. [[CrossRef](#)] [[PubMed](#)]
3. Lassi, Z.S.; Salam, R.A.; Das, J.K.; Wazny, K.; Bhutta, Z.A. An unfinished agenda on adolescent health: Opportunities for interventions. *Semin. Perinatol.* **2015**, *39*, 353–360. [[CrossRef](#)] [[PubMed](#)]
4. Goodyear-Smith, F.; Jackson, C.; Greenhalgh, T. Co-design and implementation research: Challenges and solutions for ethics committees. *BMC Med. Ethics* **2015**, *16*, 78. [[CrossRef](#)]
5. Gilbert, E.; Collins, R.; Webster, V.; Boyd, N.; Maple-Brown, L.; Boyle, J.; Smith-Vaughan, H. Using co-design to develop a culturally responsive reproductive health learning resource for Aboriginal and Torres Strait Islander youth. *Health Promot. J. Aust.* **2021**, *32*, 179–185. [[CrossRef](#)]
6. Mbachu, C.O.; Clara Agu, I.; Onwujekwe, O. Collaborating to co-produce strategies for delivering adolescent sexual and reproductive health interventions: Processes and experiences from an implementation research project in Nigeria. *Health Policy Plan.* **2020**, *35* (Suppl. 2), ii84–ii97. [[CrossRef](#)]
7. Thabrew, H.; Fleming, T.; Hetrick, S.; Merry, S. Co-design of eHealth interventions with children and young people. *Front. Psychiatry* **2018**, *9*, 481. [[CrossRef](#)]
8. Vindrola-Padros, C.; Barbosa, E.C.; Ramsay, A.I.; Turner, S.; Morris, S.; Agble, R.; Caldwell-Nichols, A.; Fulop, N.J. Mixed methods evaluation of a hospital group model using an embedded research approach: Study protocol. *BMJ Open* **2019**, *9*, e027086. [[CrossRef](#)]
9. Denno, D.M.; Hoopes, A.J.; Chandra-Mouli, V. Effective strategies to provide adolescent sexual and reproductive health services and to increase demand and community support. *J. Adolesc. Health* **2015**, *56*, S22–S41. [[CrossRef](#)]
10. Mehta, S.D.; Seeley, J. Grand challenges in adolescent sexual and reproductive health. *Front. Reprod. Health* **2020**, *2*, 2. [[CrossRef](#)]
11. Tricco, A.C.; Lillie, E.; Zarin, W.; O'Brien, K.K.; Colquhoun, H.; Levac, D.; Moher, D.; Peters, M.D.; Horsley, T.; Weeks, L.; et al. PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Ann. Intern. Med.* **2018**, *169*, 467–473. [[CrossRef](#)] [[PubMed](#)]
12. Covidence Systematic Review Software. Veritas Health Innovation: Melbourne, Australia. Available online: [www.covidence.org](http://www.covidence.org) (accessed on 28 September 2021).
13. Decker, M.J.; Gutmann-Gonzalez, A.; Price, M.; Romero, J.; Sheoran, B.; Yarger, J. Evaluating the effectiveness of an intervention integrating technology and in-person sexual health education for adolescents (in the know): Protocol for a cluster randomized controlled trial. *JMIR Res. Protoc.* **2020**, *9*, e18060. [[CrossRef](#)] [[PubMed](#)]
14. Hong, J.; Fongkaew, W.; Senaratana, W.; Tonmukayakul, O. Development of a theory-based sexual and reproductive health promotion and HIV prevention program for Chinese early adolescents. *Nurs. Health Sci.* **2010**, *12*, 360–368. [[CrossRef](#)] [[PubMed](#)]
15. Assifi, A.R.; Kang, M.; Sullivan, E.; Dawson, A.J. Assessing care trajectories of adolescent females seeking early induced abortion in New South Wales: Multistage, mixed-methods study protocol. *BMJ Open* **2020**, *10*, e039819. [[CrossRef](#)] [[PubMed](#)]
16. Aventin, Á.; Rabie, S.; Skeen, S.; Tomlinson, M.; Makhetha, M.; Siqabatiso, Z.; Lohan, M.; Clarke, M.; Lohfeld, L.; Thurston, A.; et al. Adaptation of a gender-transformative sexual and reproductive health intervention for adolescent boys in South Africa and Lesotho using intervention mapping. *Glob. Health Action* **2021**, *14*, 1927329. [[CrossRef](#)]
17. Cook, S.M.; Grozdanovski, L.; Renda, G.; Santoso, D.; Gorkin, R.; Senior, K. Can you design the perfect condom? Engaging young people to inform safe sexual health practice and innovation. *Sex Educ.* **2021**, *22*, 110–122. [[CrossRef](#)]
18. Gill, R.; Black, A.; Dumont, T.; Fleming, N. Photovoice: A strategy to better understand the reproductive and sexual health needs of young mothers. *J. Pediatr. Adolesc. Gynecol.* **2016**, *29*, 467–475. [[CrossRef](#)]
19. Jaworsky, D.; Larkin, J.; Sriranganathan, G.; Clout, J.; Janssen, J.; Campbell, L.; Flicker, S.; Stadnicki, D.; Erlich, L.; Flynn, S. Evaluating youth sexual health peer education programs: “Challenges and suggestions for effective evaluation practices”. *J. Educ. Train. Stud.* **2013**, *1*, 227–234. [[CrossRef](#)]
20. Markus, S.F. Photovoice for healthy relationships: Community-based participatory HIV prevention in a rural American Indian community. *Am. Indian Alsk. Nativ. Ment. Health Res.* **2012**, *19*, 102–123. [[CrossRef](#)]
21. Newby, K.V.; Brown, K.E.; Bayley, J.; Kehal, I.; Caley, M.; Danahay, A.; Hunt, J.; Critchley, G. Development of an intervention to increase sexual health service uptake by young people. *Health Promot. Pract.* **2017**, *18*, 391–399. [[CrossRef](#)]
22. Patchen, L.; Ellis, L.; Ma, T.X.; Ott, C.; Chang, K.H.K.; Araya, B.; Atreyapurapu, S.; Alyusuf, A.; Lanzi, R.G. Engaging african american youth in the development of a serious mobile game for sexual health education: Mixed methods study. *JMIR Serious Games* **2020**, *8*, e16254. [[CrossRef](#)] [[PubMed](#)]
23. Pensak, M.J.; Lundsberg, L.S.; Stanwood, N.L.; Cutler, A.S.; Garipey, A.M. Development and feasibility testing of a video game to reduce high-risk heterosexual behavior in spanish-speaking latinx adolescents: Mixed methods study. *JMIR Serious Games* **2020**, *8*, e17295. [[CrossRef](#)] [[PubMed](#)]

24. Shahmanesh, M.; Okesola, N.; Chimbindi, N.; Zuma, T.; Mdluli, S.; Mthiyane, N.; Adeagbo, O.; Dreyer, J.; Herbst, C.; McGrath, N.; et al. Thetha Nami: Participatory development of a peer-navigator intervention to deliver biosocial HIV prevention for adolescents and youth in rural South Africa. *BMC Public Health* **2021**, *21*, 1393. [[CrossRef](#)]
25. Simuyaba, M.; Hensen, B.; Phiri, M.; Mwansa, C.; Mwenge, L.; Kabumbu, M.; Belemu, S.; Shanaube, K.; Schaap, A.; Floyd, S.; et al. Engaging young people in the design of a sexual reproductive health intervention: Lessons learnt from the Yathu Yathu (“For us, by us”) formative study in Zambia. *BMC Health Serv. Res.* **2021**, *21*, 753. [[CrossRef](#)] [[PubMed](#)]
26. Wood, L.; Hendricks, F. A participatory action research approach to developing youth-friendly strategies for the prevention of teenage pregnancy. *Educ. Action Res.* **2017**, *25*, 103–118. [[CrossRef](#)]
27. Zaleski, N.; Martin, P.; Messinger, J. Given and chosen: Youth-led research on family-supported conversations about sexuality. *Fam. Community Health* **2015**, *38*, 131–140. [[CrossRef](#)] [[PubMed](#)]
28. Cense, M.; Grauw, S.; Vermeulen, M. ‘Sex is not just about ovaries’. Youth participatory research on sexuality education in the Netherlands. *Int. J. Environ. Res. Public Health* **2020**, *17*, 8587. [[CrossRef](#)] [[PubMed](#)]
29. Cordova, D.; Munoz-Velazquez, J.; Mendoza Lua, F.; Fessler, K.; Warner, S.; Delva, J.; Adelman, N.; Counlic, Y.L.; Fernandez, A.; Bauermeister, J. Pilot study of a multilevel mobile health app for substance use, sexual risk behaviors, and testing for sexually transmitted infections and HIV among youth: Randomized controlled trial. *JMIR Mhealth Uhealth* **2020**, *8*, e16251. [[CrossRef](#)]
30. Garwick, A.W.; Rhodes, K.L.; Peterson-Hickey, M.; Hellerstedt, W.L. Native teen voices: Adolescent pregnancy prevention recommendations. *J. Adolesc. Health* **2008**, *42*, 81–88. [[CrossRef](#)]
31. Guerrero, F.; Lucar, N.; Garvich Claux, M.; Chiappe, M.; Perez-Lu, J.; Hindin, M.J.; Gonsalves, L.; Bayer, A.M. Developing an SMS text message intervention on sexual and reproductive health with adolescents and youth in Peru. *Reprod Health* **2020**, *17*, 116. [[CrossRef](#)]
32. Haruna, H.; Zainuddin, Z.; Mellecker, R.R.; Chu, S.K.; Hu, X. An iterative process for developing digital gamified sexual health education for adolescent students in low-tech settings. *Inf. Learn. Sci.* **2019**, *120*, 723–742. [[CrossRef](#)]
33. Holliday, R.C.; Phillips, R.; Akintobi, T.H. A community-based participatory approach to the development and implementation of an HIV health behavior intervention: Lessons learned in navigating research and practice systems from project Happy. *Int. J. Environ. Res. Public Health* **2020**, *17*, 399. [[CrossRef](#)] [[PubMed](#)]
34. Hubert, C.; Estrada, F.; Campero, L.; Heredia-Pi, I.B.; Villalobos, A.; Suárez-López, L.; Ibáñez-Cuevas, M.; Barrientos, T. Designing digital tools capable of reaching disadvantaged adolescents and improving their sexual health: A Mexican experience. *J. Health Care Poor Underserved* **2021**, *32*, 62–84. [[CrossRef](#)]
35. Ivanova, O.; Cordova-Pozo, K.; Segura, Z.E.; Vega, B.; Chandra-Mouli, V.; Hindin, M.J.; Temmerman, M.; Decat, P.; De Meyer, S.; Michielsen, K. Lessons learnt from the CERCA Project, a multicomponent intervention to promote adolescent sexual and reproductive health in three Latin America countries: A qualitative post-hoc evaluation. *Eval. Program Plan.* **2016**, *58*, 98–105. [[CrossRef](#)]
36. Jones, A.C. Exploring Ugandan Secondary School Students’ Sexual Health Education Needs and Developing School-Based Sexual Health Interventions through Participatory Action Research. Master’s Thesis, University of Alberta, Edmonton, AB, Canada, 2012.
37. Lofton, S.; Norr, K.F.; Jere, D.; Patil, C.; Banda, C. Developing action plans in youth photovoice to address community-level HIV risk in rural Malawi. *Int. J. Qual. Methods* **2020**, *19*, 1609406920920139. [[CrossRef](#)]
38. Marinkovich, Z.A.H. Growing up with HIV in Kisumu, Kenya: Participatory Action Research with Young People Living with HIV. Ph.D. Thesis, University of San Francisco, San Francisco, CA, USA, 2014.
39. Shegog, R.; Craig Rushing, S.; Gorman, G.; Jessen, C.; Torres, J.; Lane, T.L.; Gaston, A.; Revels, T.K.; Williamson, J.; Peskin, M.F.; et al. NATIVE-it’s your game: Adapting a technology-based sexual health curriculum for American Indian and Alaska Native youth. *J. Prim. Prev.* **2017**, *38*, 27–48. [[CrossRef](#)]
40. Nolan, C.; Packel, L.; Hope, R.; Levine, J.; Baringer, L.; Gatara, E.; Umubyeyi, A.; Sayinzoga, F.; Mugisha, M.; Turatsinze, J.; et al. Design and impact evaluation of a digital reproductive health program in Rwanda using a cluster randomized design: Study protocol. *BMC Public Health* **2020**, *20*, 1701. [[CrossRef](#)]
41. Fongkaew, W.; Fongkaew, K.; Muecke, M. HIV/sexual and reproductive health program for HIV prevention: The youth-adult partnership with schools approach. *J. Med. Assoc. Thailand* **2006**, *89*, 1721–1732.