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Review article

Mentoring Interventions and the Impact of Protective Assets on the Reproductive Health of Adolescent Girls and Young Women

Kate F. Plourde, M.P.H. [a,*], Nicole B. Ippoliti, M.P.H. [a], Geeta Nanda, Dr.P.H., M.H.S. [b], and Donna R. McCarraher, Ph.D. [c]

[a] *Research Utilization, GHPN—Global Health, Population, and Nutrition, FHI 360, Durham, North Carolina*
[b] *RMNCH—Reproductive, Maternal, Newborn, and Child Health, GHPN—Global Health, Population, and Nutrition, FHI 360, Washington, DC*
[c] *RMNCH—Reproductive, Maternal, Newborn, and Child Health, GHPN—Global Health, Population, and Nutrition, FHI 360, Durham, North Carolina*

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A B S T R A C T

Adolescent girls and young women (AGYW) are disproportionately affected by HIV and AIDS and other negative reproductive health (RH) outcomes. Emerging evidence suggests that programs to build AGYW's assets can help reduce their vulnerability to poor RH. Mentoring interventions have demonstrated a positive impact on a variety of youth development outcomes, including the protective assets needed to circumvent poor RH outcomes. The purpose of this review was to understand the types of mentoring programs for AGYW that have demonstrated effectiveness in improving protective assets, and/or, RH knowledge, intentions, behaviors, or outcomes themselves. Interventions were identified through an electronic search of the peer-reviewed and the gray literature. Studies were excluded in stages based on reviews of titles, abstracts, and full text. A review of 491 publications yielded a total of 19 articles that were included in the final review. The majority of the publications examined the impact of the one-to-one mentoring model in the United States. However, a good proportion examined the impact of both one-on-one and group-based interventions globally. The few interventions that followed a group-based model demonstrated more promise; evaluations of this model demonstrated a positive impact on RH knowledge and behavior, academic achievement, financial behavior, and social networks, as well as reductions in the experience of violence. Group-based mentoring programs demonstrated the most promise in building AGYW's protective assets and improving their RH outcomes. The most successful interventions consisted of multiple components, including mentoring, that sought to directly improve AGYW's protective assets and met with more frequency over a longer duration. Despite the promising evidence, more research is needed to better understand the relationship between assets and RH; the characteristics of successful mentoring programs; and the influence mentoring alone has on RH outcomes, versus mentoring as part of a larger RH program.

IMPLICATIONS AND CONTRIBUTION

This review summarizes the evidence from 19 mentoring interventions identified via a literature review on mentoring programs for adolescent girls and young women and their potential to improve the protective factors needed to circumvent poor sexual and reproductive health outcomes. Findings can inform the design of future programs and research.

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* Address correspondence to: Kate F. Plourde, M.P.H., GHPN—Global Health, Population, and Nutrition, 359 Blackwell Street, Suite 200, Durham, NC 27701.
E-mail address: KPlourde@fhi360.org (K.F. Plourde).

Worldwide, adolescent girls and young women (AGYW), aged 15–29 years, remain persistently and disproportionately affected by HIV and AIDS and other detrimental reproductive health (RH) outcomes. HIV is the leading cause of death for girls between the age of 15 and 19 years globally, followed by complications of pregnancy and childbirth as the second leading cause of death

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[1–3]. Globally, 60% of new HIV infections among 15- to 24-year-olds are among girls; in eastern and southern Africa, girls account for 80% of new infections among 15- to 19-year-olds [1,4]. In addition to HIV, AGYW are also at increased risk, compared with either men or older women [3], of acquiring other sexually transmitted infections. Structural drivers such as gender-based violence, early marriage, economic instability, restrictive policies, and limited access to health and educational services exacerbate AGYW's vulnerability and contribute to negative RH outcomes among AGYW [4].

Efforts to alleviate these constraints are underway; many countries are beginning to tighten laws related to early marriage and gender-based violence. For example, since 2011, six countries have increased the legal age of marriage to 18 years, and many others have removed parental consent exceptions for marriage before the legal age [5]. Yet, as we work to address these structural drivers, we must also simultaneously empower AGYW by building the protective assets that influence their future RH, educational, financial, and social outcomes [6]. As we move toward this more holistic approach to addressing AGYW's RH, we need a greater understanding of the most effective strategies. One approach to empower AGYW is to build their protective assets [1,7]. Protective assets are broadly defined as the "skills, resources, and social and economic capital" AGYW need to reach their full potential [7,8]. The protective assets that are associated with improved RH include strong social networks, self-esteem, self-efficacy, and economic empowerment [1,9,10].

Policymakers are beginning to recognize the importance of this multifaceted approach. In 2015, the U.S. President's Emergency Plan for AIDS Relief, the Bill & Melinda Gates Foundation, Girl Effect, Johnson & Johnson, Gilead Sciences, and ViiV Healthcare joined forces to launch the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe initiative in 10 Sub-Saharan African countries. The mandate of this program is to reduce HIV infection among young women by addressing risk at multiple levels. The comprehensive package of the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe interventions includes those to empower AGYW such as gender-based violence prevention and care, efforts to improve access to pre-exposure prophylaxis, and social asset building; interventions to strengthen families; and interventions to mobilize communities [11,12]. Similarly, both the U.S. Global Strategy to Empower Adolescent Girls and the U.S. Agency for International Development's Youth in Development Policy advocate for a holistic approach that pairs individual empowerment with efforts to challenge harmful norms, improve access to health and educational services, and build a supportive policy environment [11,13].

Over the past two decades, mentoring has grown as an intervention strategy for encouraging positive youth development [14], which is an approach that seeks to promote good outcomes for young people by engaging youth along with their families and communities to foster constructive relationships and build the protective assets they need to succeed [5,15]. For the purposes of this review, mentoring is defined as formal relationships in which the mentor models positive behaviors to the benefit of the mentee and provides guidance, support, and skills through regular meetings to overcome health, social, and economic challenges [16,17]. While mentor selection criteria vary by program, identifying characteristics of mentors across the literature include individuals from the same community as the mentees and those who are old enough to impart advice but young enough to be relatable. Being from the same communities as their mentees means that mentors have often faced similar life experiences and are thus in a unique position to impart guidance and support to mentees as they navigate similar challenges that arise during adolescence. A mentoring relationship can take place between two individuals (1:1) or among smaller groups of people, led by a peer mentor, or by an older adult. Mentoring is associated with decreases in the perpetration of violence and the use of drugs and improved self-esteem among adolescents in the United States [18,19]. Little is known, however, about how mentoring may relate to RH. To understand the types of mentoring programs for AGYW that have demonstrated effectiveness in improving the protective assets needed to circumvent poor RH—and/or to improve RH knowledge, intentions, behaviors, or outcomes themselves—we conducted a systematic review of the relevant literature.

Table 1
Key characteristics of included programs

Characteristics	Total (no. of programs/total number of programs studied)
Intervention type	
One-on-one	13/19
Group based	7/19
Mentee population	
Minority youth	5/19
At-risk adolescent youth	3/19
High school students	2/19
Pregnant women living with HIV	2/19
Black adolescent mothers	1/19
First-time mothers	1/19
Out-of-school girls	1/19
Middle school students	1/19
Migrant adolescents and domestic workers	1/19
Recent immigrants	1/19
Substance users	1/19
Participant age group	
10–14	15/19
15–19	16/19
20–29	3/19
Mentor characteristics	
Mothers[a]	6/19
Peers[b]	5/19
Young adults	5/19
College students	4/19
Adult female	2/19
Not specified (details not provided)	2/19
Female secondary school graduates	1/19
Paraprofessionals	1/19
Previous experience working with children	1/19
Setting	
School	10/19
Community	8/19
Home	1/19
Other/not specified	1/19
Country	
North America	12/19
Sub-Saharan Africa	4/19
Europe and Central Asia	2/19
Australia	1/19
Middle East and North Africa	1/19

[a] Mothers included those living with HIV (3/19), black single mothers (1/19), and mothers less than 40 years old (1/19).
[b] The majority of peers were high school students (5/19), one study defined peers as females who have experienced mental health issues, substance abuse, and incarceration.

Review of the Relevant Literature

Methods

We identified relevant interventions through an electronic search (Table 1) of the peer-reviewed literature in PubMed and Web of Science, other literature available in POPLINE, and the U.S. Agency for International Development's Development Experience Clearinghouse, and by a review of the reference list for all reports and articles that met inclusion criteria. The search included any article published before February 11, 2016; search terms included: "mentors," "mentor," "mentoring," "safe space," "female," "adolesc,*" (The asterisk relates to the search strategy which captured any word with adolesc as the root: adolescent, adolescence; the same applies to the term "child.") "child,*" "young adult," "young adults" "achievement," "psychological adaptation," "adolescent behavior," "adolescent development," "child development," "HIV infections," "health knowledge, attitudes, practice" "pregnancy," "psychological resilience," "self-efficacy," "sexual behavior," "psychology," "social support," "economic empowerment."

Two analysts with expertise in adolescent and youth sexual and RH and gender research and programming independently reviewed each publication to determine its eligibility for inclusion. Together the analysts reviewed their determinations; where there were discrepancies, additional scientists on the writing team were consulted to make a final determination. Inclusion and exclusion criteria were established by team consensus before publication review; however, a formal review protocol is not available. Articles were included if they were published between 2005 and 2015, the study population included AGYW between the age of 10 and 29 years, the intervention met the mentoring description provided previously, and study outcomes included protective factors needed to circumvent poor RH (including self-esteem/self-efficacy, financial literacy/behavior, and strong social networks) and/or RH knowledge, attitudes, and behaviors. Literature was limited to the past 10 years in an effort to present the most salient information. Articles that were not written in English, interventions that were not evaluated or targeted males only, commentaries, editorials, case studies, economic analyses, trip reports, program tools, audits, mathematical modeling, studies that examined the impact of interventions on mentors only or of nonformal mentors were excluded. We excluded articles in stages based on reviews of the titles, followed by abstracts, and then finally the full text.

The initial search returned 491 unique documents; 303 were eliminated during title screening, and 108 were eliminated after the abstract review. A total of 80 documents remained for full-text review; 62 records were removed at this stage leaving a final database of 18 records. A review of reference lists from included documents resulted in the identification of one additional record. Ultimately, 19 records were included in the review. Data were abstracted using a matrices developed by the team. Data items included citation, year of publication, program name, country of implementation, study objective, description of study population, gender (% female), age range of participants, mean or median age of participants, total number of study participants, mentor characteristics, frequency of mentor meetings, duration of intervention, type of intervention (group or one-on-one), size of mentee group (if group based), cost information (when available), study design, and outcomes (Figure 1).

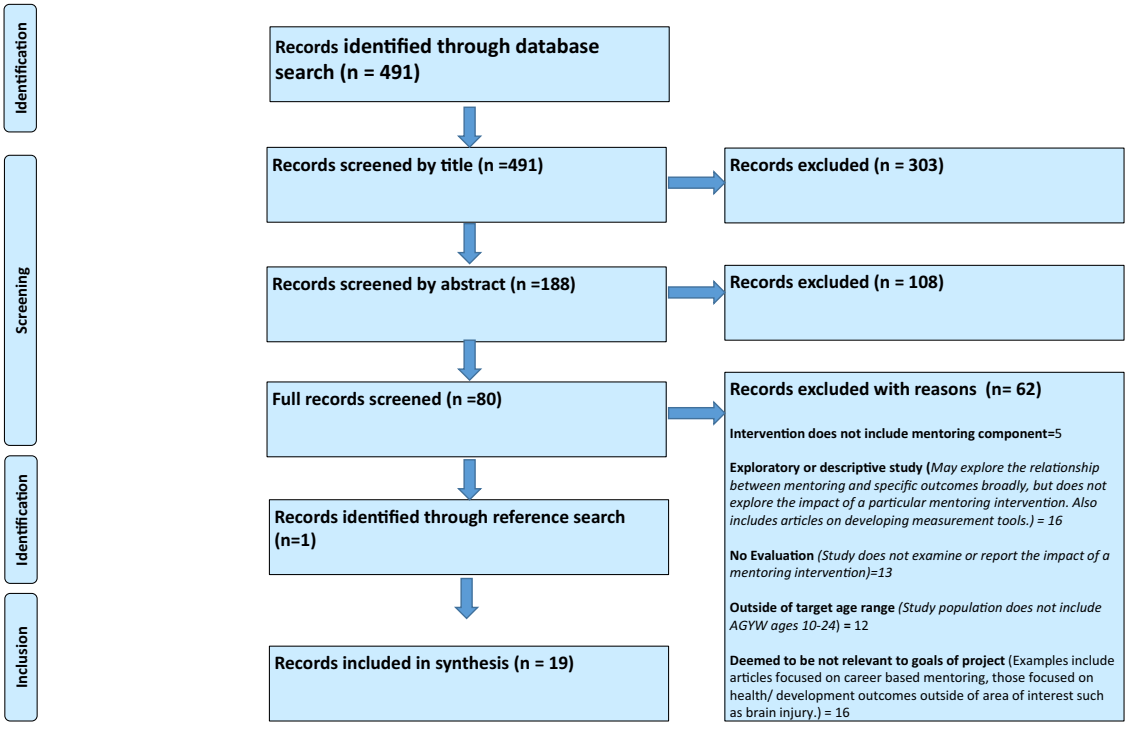

Figure 1. Flow Diagram.

Results

The majority of identified literature on mentoring programs examined the impact of the one-on-one, rather than the group-based model (Table 1). The target population of the interventions varied and included first-time mothers, mothers living with HIV, females at risk of intimate partner violence, incarcerated women, migrant adolescents and domestic workers, and substance users. Five studies targeted "at-risk youth," who were either identified by school staff, family members, child protective services, or friends and/or demonstrated low school performance, poor social skills, behavioral problems, a history of childhood abuse or trauma, and difficult family situations [17–21]. Three studies targeted young people of color: African-American youth, Latina youth, and young people of multiple ethnicities [24–26]. Many of the programs reached both very young (ages 10–14 years) and older (ages of 15–19 years) adolescents. More than half of the interventions targeted females only, while the remaining targeted both males and females. Most of the interventions took place in a school or other community setting and most mentors were young people themselves, described as college or high school students, or simply as young adults. An overwhelming majority of published evidence is from the United States with only five studies in developing countries (Burkina Faso, Egypt, and South Africa) identified. No studies in East Asia and the Pacific, South Asia, or Latin America and the Caribbean were identified.

Table 2 lists the outcomes of interest identified through the review. Detailed descriptions of the interventions appear in Table 3.

Table 4 describes group-based interventions and outcomes. Among the group-based interventions, there was a fairly even distribution of evaluation designs (randomized control trial [n = 3], quasi experimental [n = 2], or other [n = 2]). Two of the group-based interventions demonstrated an impact on RH behaviors including health-seeking behavior and partner communication; three demonstrated a positive impact on RH knowledge, attitudes, and intentions; and two demonstrated improved financial literacy and behavior. For example, participants in the Ishraq program in Egypt were more likely to want to delay marriage, limit childbearing, save money for an emergency, and seek health services than AGYW in a comparison group [30]. Only one group-based intervention demonstrated an impact on self-esteem/self-efficacy. Four demonstrated a positive impact on social network outcomes including increased friendship networks and access to a safe place to meet nonfamilial peers. An intervention to delay second births among adolescent mothers in Baltimore, Maryland was the only intervention identified through this review that had an impact on a biological outcome. This intervention demonstrated a decrease in rates of repeat pregnancy among participants [27].

Table 5 describes the one-on-one interventions and outcomes. Among the evaluations of one-on-one interventions, quasi-experimental designs (n = 5) and other research methods (n = 4) were more common than randomized control trials (n = 3). None of the one-on-one interventions demonstrated an impact on RH knowledge, attitudes, and intentions or on biological RH outcomes. Only one demonstrated an impact on RH behavior (regular contraceptive use) and only one on financial literacy and behavior. Six demonstrated positive impact on self-esteem/self-efficacy; however, another three had no impact on

Table 2
Selected outcomes from mentoring interventions

Improved sexual and reproductive health (SRH) knowledge, attitudes, and intentions	SRH behavior change	SRH biological outcome	Self-esteem/self-efficacy	Financial literacy/behavior	Social network
• Contraceptive knowledge (ability to successfully identify at least one contraceptive method; knowledge of where to access contraceptive methods; knowledge of the various methods) • HIV knowledge (understands how to prevent HIV; knows how HIV is transmitted) • STI knowledge (knows the symptoms of STIs) • Puberty and fertility (knows that a man is responsible for the sex of the baby; understands the menstrual cycle and when pregnancy is likely to occur; wants three children or less; attitudes toward fertility and childbearing) • Gender-based violence (knows where to go if rape or harassment occurs)	• Contraceptive behavior (regular contraceptive use) • HIV-related behavior (disclosed HIV status to sexual partner; asked sexual partner to go for an HIV test; always used a condom; Increased condom use; decrease in the number of concurrent sexual partners; decreased unprotected sex)	• Delayed second birth	• Development of new skills and confidence • Self-reported increase in self-esteem • Confidence in identity • Internal locus of control • Perceived social acceptance • Improved body image • Accountability/responsibility for self • Goal setting • Problem solving	• Knows someone from whom they could borrow money in case of emergency • Has a saving goal • Change in saving behavior (saved money for an emergency; is saving in a bank) • Planned to start, or already had started, their own project • Change in employment status • Can communicate with employer about money	• Has more than one nonrelative friend • Connectedness (peer, social, and/or community) connectedness

STI = sexually transmitted infection.

Table 3
Description of interventions

Program title	Intervention type	Intervention description (location, group size, intensity, duration of intervention implementation, and duration of follow-up period for the evaluation)	Summary of key results
Big Brother Big Sister Association of Australia (Moodie and Fisher 2009 [16])	One-on-one	BBBS Australia matches at-risk youth aged 7–17 years with adult volunteers. The program's goal was to foster positive youth development and reduce self-destructive behaviors. An average of three meetings per month were held, each lasting for 45 minutes over a period of 1.5 school-calendar years.	Decreased ATOD use, no change in self-efficacy/self-esteem. Improved academic achievement and academic self-efficacy.
Filles Eveillees ("Girls Awakened") (Engebretsen et al. 2012 [17])	Group based	Filles Eveillées was a program for domestic workers in Burkina Faso. The program aimed to increase social capital; build adolescent girls' skills in health (including sexual and reproductive health), life skills, and financial capabilities; and link girls to services. Girls met for 30 sessions for 2 hours, over 8 months.	Demonstrated increased RH knowledge, increased social assets, increased financial literacy, and changes in financial behavior.
4-H (Higginbotham et al. 2010 [21])	One-on-one	Program sought to strengthen the developmental assets for youth in the United States, aged 8–17 years, who have below-average school performance, poor social skills, and/or weak family bonds. A maximum of eight sessions were held with young adult mentors over the course of 1 year.	No impact
SMILE (Karcher 2008 [22])	One-on-one	School-based mentoring intervention aimed at improving academic performance, social support, and self-esteem for Latino youths aged 10–18 years in the United States. An average of eight sessions were held over the course of 1 school-calendar year, with each session lasting 1 hour.	Improved self-efficacy/self-esteem, and financial literacy. No impact on academic achievement.
Transition Mentor Program (Yadav et al. 2010 [23])	One-on-one	Intervention aimed at improving behavioral and psychosocial outcomes for at-risk children aged 11–16 years transitioning from primary to secondary education in the United States. Weekly sessions for 10 months; length of each session not reported.	Improved self-esteem/self-efficacy.
Sport Hartford (Bruening et al. 2009 [24])	One-on-one	Sports mentoring intervention for adolescent girls of color (African-American, Latina) ages 9–13 years in the United States. Sessions focused on self-esteem building, physical activity, and health/life-skills acquisition. Twice weekly sessions were held, lasting for 2 hours each for 24 weeks.	Improved self-efficacy/self-esteem and increased social assets.
Multiple Heritage Service in Sheffield (Phillips et al. 2008 [25])	One-on-one	Individual mentoring and school-based sessions for youth in the UK from multiple heritages; covered cultural heritage, coping with racism, and enhancing well-being. Up to 12 sessions were held, weekly or monthly, for up to a period of 1 year.	No impact on self-efficacy/self-esteem. Improved mental health outcomes.
Cool Girls (Kuperminc et al. 2011 [26])	One-on-one	A school-based, youth development mentoring program in the United States for girls aged 9–15 years. The aim was to promote positive attitudes and behaviors including academic orientation, goal setting, self-esteem, and self-efficacy. Intervention took place over the course of 1 school-calendar year; frequency and length of meetings was not reported.	Increased self-efficacy and general health behavior (physical activity) change. No impact on ATOD use or academic achievement.
Three Generation (Black et al. 2006 [27])	Group based	Nineteen session home-based intervention for low-income, black adolescent first-time mothers in the U.S. between the ages of 13 and 17 years. The aim was to determine whether home-based mentoring intervention was effective in preventing second births within 2 years of the adolescent mother's first delivery. Sessions were held bimonthly; length of each session was not reported.	Demonstrated delayed second birth among participants.

(*continued on next page*)

Table 3
Continued

Program title	Intervention type	Intervention description (location, group size, intensity, duration of intervention implementation, and duration of follow-up period for the evaluation)	Summary of key results
Going for the Goal (Forneris et al. 2007 [28])	Group based	Intervention aimed at teaching ninth graders (aged 14–16 years) in Canada goal setting and problem solving. Ten weekly peer-mentoring sessions, with each session lasting 1 hour.	Increased social assets.
Ishraq (Selim et al. 2013 [29])	Group based	Ishraq combined traditional tested program elements (literacy, life skills, nutrition) with more innovative ones (sports, financial education) to build the health, social, and economic assets of out-of-school unmarried girls in Egypt ages 12–15 years. The program ran for 30 months. Sessions were held four times a week for 4 hours each.	Increased RH knowledge, attitudes, and intentions. Positive changes in knowledge, attitudes/intentions, and behavior of gender norms and rights. Improved general health knowledge and behavior, decreased experience of violence, mixed results for self-efficacy/self-esteem, increased social assets, value building, improved academic achievement, and changes in financial behavior.
Mamekhaya (Futterman et al. 2010 [30])	Group based	Social support intervention for pregnant women in South Africa between the ages of 16 and 42 years attending two maternity clinics offering PMTCT services. Mentees and peer mother mentors met for eight sessions. Session length and intervention period were not recorded.	Positive increase in social assets, HIV knowledge, general health knowledge, and mental health outcomes.
Masiham-bisane (We Walk together) (Richter et al. 2014 [31])	Group based	Eight session social support and HIV care and treatment program for pregnant women living with HIV in South Africa. Intervention lasted 6 months. Length of each session was not reported.	Positive RH behavior change.
Mothers-2-Mothers (Rotheram-Borus et al. 2014 [32])	Group based	Support group intervention for newly pregnant women living with HIV in South Africa. Eight sessions were held from pregnancy through the infant's first year of life. Length of each session not reported.	No impact on RH behavior change; mixed results for mental health outcomes.
Alberta First Steps (Rasmussen et al. 2012 [33])	One-on-one	Program sought to improve birth outcomes among women at risk of giving birth to a child with fetal alcohol syndrome. Intervention consisted of home visits over 12–36 months for women in Canada who were currently pregnant or up to 6 months postpartum and who self-reported or who were at risk of heavy alcohol and/or illicit drug use during the index pregnancy. Length of each session was not reported.	Improved goals related to alcohol and drug use, self-care, and family planning. Decreased drug and alcohol use. Decrease in the number of women who were unemployed or received social assistance.
Big Brother Big Sister Association of Boston (Herrera et al. 2011 [34])	One-on-one	This impact study surveyed 1,139 at-risk youths aged 9–16 years who participated in the BBBS program in 10 cities throughout the U.S. school-based mentoring sessions focused on healthy socioemotional and academic development and occurred three to four times per month over a period of 2.5–11 years. Session length was not reported.	Relative to the control group, mentored youth performed better academically and had improved self-efficacy. However, they did not show improvements in relationships with parents, teachers or peers, or rates of problem behavior.
Gear Up (Yeh et al. 2007 [35])	One-on-one	Peer-mentoring sessions for students who were recent Chinese immigrants to the U.S., between the ages of 17 and 20 years. Intervention aimed to build social networks and improve academic performance. Weekly meetings for 3 months; session duration was not reported.	Mixed results for impact on social assets. No impact on academic self-efficacy.
Mentors in Violence (Katz et al. 2011 [36])	One-on-one	Violence prevention intervention for high school students in the United States. Information about frequency of meetings, duration of meetings, and duration of intervention not reported.	Demonstrated impact on building values (reporting bullying).
Moments (Cupples et al. 2011 [37])	One-on-one	Peer-mentoring intervention focused on reducing health inequalities for young children and their mothers aged 16–30 years in Ireland. An average of eight sessions were held over the course of 1 year. Session duration was not reported.	No impact.

ATOD = alcohol, tobacco, and other drugs; BBBS = Big Brothers Big Sisters; PMTCT = prevention of mother-to-child transmission of HIV; RH = reproductive health.

Table 4
Research design and key outcomes of included group-based interventions

	Evaluation design			Key outcomes					
	RCT	Quasi-experimental design	Other	Improved sexual and reproductive health (SRH) knowledge, attitudes, and intentions	SRH behavior change	SRH biological outcome	Self-esteem/ self-efficacy	Financial literacy/behavior	Social network
Filles Eveillees ("Girls Awakened") (Engebretsen et al. 2012 [17])		+		+				+	+
Going for the Goal (GOAL) (Forneris et al. 2007 [28])			+						+
Ishraq (Selim et al. 2013 [29])		+		+	+		+	+	+
Mamekhaya (Futterman et al. 2010 [30])			+	+					+
Masiham-bisane (Richter et al. 2014 [31])	+				+				
Mothers-2-Mothers (M2M) program (Rotheram-Borus et al. 2014 [32])	+								
Three Generation Study (Black et al. 2006 [27])	+					+			
Total (7)	3	2	2	3	2	1	1	2	4

(+) = positive outcomes; RCT = randomized control trial.

Table 5
Research design and key outcomes of included one-on-one interventions

	Evaluation design			Key outcomes					
	RCT	Quasi-experimental design	Other	Improved sexual and reproductive health (SRH) knowledge, attitudes, and intentions	SRH behavior change	SRH biological outcome	Self-esteem/ self-efficacy	Financial literacy/behavior	Social network
4-H Mentoring: Youth and Families with Promise (Higginbotham et al. 2010 [21])		+					0		
Alberta first steps program (Rasmussen et al. 2012 [33])			+		+			+	
Big Brothers Big Sisters Australia (Moodie and Fisher 2009 [16])	+						0		
Big Sister Association of Greater Boston (Herrera et al. 2011 [34])			+				+		+
Cool Girls, Inc. (Kuperminc et al. 2011 [26])		+					+		
Gaining Early Awareness and Readiness Program (GEAR UP) (Yeh et al. 2007 [35])		+					+		
Mentors in Violence Prevention (Katz et al. 2011 [36])		+							
The MOMENTS Study (Cupples et al. 2010 [37])	+								
Multiple Heritage Service in Sheffield (Phillips et al. 2008 [25])			+				0		
SMILE (Karcher 2008 [22])	+						+		+
Sport Hartford Program (Bruening et al. 2009 [24])			+				+		+
Transition Mentoring Program (Yadav et al. 2010 [23])		+					+		
Total (12)	3	5	4	0	1	0	6	1	3

(+) = positive outcomes; (0) = no change in outcomes; RCT = randomized control trial.

this outcome. Three of the one-on-one interventions demonstrated an impact on social network.

Across all interventions (group-based and one-on-one), there was a wide range of target mentee populations and mentor characteristics; however, many programs matched mentees and mentors based on similar characteristics such as gender, race, HIV status, or parity and pregnancy outcomes. Among the interventions that demonstrated the greatest impact on outcomes of interest, most mentor and mentee pairs met weekly over a period of 6 months to 2 years. These interventions often incorporated the delivery of curriculum-based learning along with formal mentoring. The programs that demonstrated less impact on the outcomes of interest often met less frequently over a shorter period of time. Across one-on-one program models, those that incorporated a home-based visit component demonstrated the most promise; for example, participants in the Alberta First Steps Program [33] demonstrated increased use of contraception, decreased alcohol and drug use, and improved financial behavior.

Discussion

Our review found mentoring programs (group-based and one-on-one) that were associated with improved self-esteem/self-efficacy and social networks. Group-based interventions for improving AGYW's RH and reducing HIV risk showed more impact than one-on-one programs. Group-based mentoring programs demonstrated improvements across multiple outcomes of interest including RH knowledge and behavior, academic achievement, financial behavior, and social networks, as well as decreases in the experience of violence [17,27–29,31,32,35]. The majority of the evaluated mentoring programs are based in the United States.

The most successful mentoring programs incorporated additional components that sought to directly improve AGYW's protective assets. For example, some programs provided access to safe, social spaces outside of the home where participants were able to develop and strengthen their peer network. Others included the delivery of curriculum-based education on RH, gender, and financial literacy. Finally, more frequent mentor/mentee meetings (once per week) over a longer period of time (6 months or longer) were associated with improved RH outcomes.

None of the studies examining the impact of programs with multiple components sought to identify the relative impact of each individual intervention component—making it difficult to understand the true impact of mentoring alone. As the international community seeks to employ mentoring programs as a strategy to empower AGYW and improve their RH outcomes, these efforts should be accompanied by studies that are adequately designed to examine the impact on biological outcomes of interest. Similarly, to understand the impact on outcomes such as education, financial livelihoods, and literacy, longer term studies are needed to strengthen the evidence base for mentoring interventions as an approach to improve AGYW's RH and reduce their risk of HIV infection.

There is a notable gap in the available literature on the mentoring approach in developing countries, and no available evidence in East Asia and the Pacific, South Asia, or Latin America and the Caribbean was identified through this review. This gap in the evidence is particularly troubling given both the magnitude of poor sexual and RH outcomes among AGYW in developing countries and the extent of the structural barriers that they face. In addition, none of the interventions identified explicitly targeted gay, lesbian, bisexual, or transgender youth nor did they disaggregate results based on sexual orientation or gender identity. Given that sexual and RH outcomes are typically poorer for gay, lesbian, bisexual, or transgender youth, understanding the impact of mentoring interventions for these populations specifically can strengthen programmatic approaches to meet their needs. With these gaps in the data, more research is needed to understand the potential for this approach among these populations.

This review sought to identify interventions that employ mentoring as the primary delivery strategy and may not capture programs that include mentoring as one component of a larger approach. The application of mentoring as an approach to improve sexual and RH is growing in popularity, especially among programs focused specifically on AGYW—we are aware of many current programs that were not captured in this review because their program evaluations are not yet published or are ongoing. In addition, this review did not include search methods other than the use of online databases, and given the paucity of evidence on this topic, no studies were excluded based on their own methodological quality. The relatively small body of evidence on this approach is a limitation of our findings. Results of this analysis should be interpreted in consideration of these potential limitations.

Summary and Implications

Initiatives to improve RH outcomes and reduce the risk of HIV infection and negative RH outcomes among AGYW must work to address the closely related health, social, and economic drivers that undermine AGYW's ability to safely and successfully advocate for their health and human rights. While increased access to HIV prevention, care, and treatment services is urgently needed for epidemic control, interventions that build the protective health, social, and economic assets of adolescent girls are a necessary precursor to ensure positive RH outcomes. We found that mentoring programs can improve the protective factors needed to circumvent poor RH outcomes among AGYW and that group-based programs may have the potential to improve RH outcomes themselves. However, more research is needed to better understand the relationship between protective assets and RH; the characteristics of successful mentoring programs; and the influence mentoring alone has on RH outcomes, versus mentoring as a part of a larger program.

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