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Parenting Interventions on Adolescent Sexual & Reproductive Health:
A Systematic Review of the Literature

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of Master of Public Health
in Hubert Department of Global Health

May 2013

Abstract

Parenting Interventions on Adolescent Sexual & Reproductive Health: *A Systematic Review of the Literature*

By Patience Manuel

Introduction: Adolescent sexual risk behavior is of concern globally. Young people account for an estimated 40% of all new HIV infections globally and unwanted pregnancies lead to three million unsafe abortions among adolescents every year. Risk factors include early sexual initiation and non-use of condoms. However, one major gap in sexual risk prevention and reduction efforts has been the limited attention paid to parents who can directly influence adolescent behaviors.

Purpose: The purpose of this thesis is to review relevant literature on parenting interventions related to adolescent sexual & reproductive health with the purpose of assessing the evidence for their effectiveness and identifying components of effective interventions that improve parenting skills and lead to positive adolescent-health outcomes.

Methodology: Three databases - PubMed, Google Scholar and Web of Science - were searched for relevant articles published from 1990 to 2012. The search identified 17 review articles with 14 employing a randomized controlled trial design. Interventions effectiveness was assessed qualitatively based on each program's content and study design characteristics. The wide range of components of the interventions and the variability in outcome measures did not permit quantitative meta-analysis of the relevant data.

Results: The interventions reviewed targeted a range of different age groups and populations, and employed a variety of different modalities. The parent-focused interventions were more effective than family-focused interventions. While some interventions promoted abstinence only, others took a more comprehensive approach to sexuality education. In both cases, parents demonstrated the potential to influence adolescent behavior. Effective interventions addressed multiple behavioral factors such as drug and alcohol use, parent-child communication, and other parenting practices including monitoring, family support and parent-child relationship.

Conclusions: Overall, the review demonstrated that parents can be a very valuable resource for sexual health education if they are given the right tools and support. A conceptual model is proposed that may be a useful guide for the design and evaluation of future interventions. The standardization of outcome measures would permit easy comparison across studies. Stronger evidence of the long-term impact of interventions is needed through longitudinal randomized controlled trials that cover the adolescent lifecycle.

Keywords: *adolescent health, sexual risk behavior, parenting interventions, parent-child communication*

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ACKNOWLEDGMENTS

This would not have been possible without the guidance and support from several individuals who in one way or the other contributed and extended their valuable assistance in preparation and completion of this thesis. Many thanks to my advisor, Dr. Kate Winskell, for her excellent guidance, patience, and encouragement and providing me with excellent feedback to give the report a professional look. Of course, I could not have started this thesis without the help of Mrs. Barbara Abu-Zeid of the Health Science Center Library at Emory University for helping with the research methodology.

And last but definitely not the least, to have my husband Kwamina and my children, Phoebe, Phaedra and Phanuelle, endure this long process with me; always offering support and love is immeasurable. To the Almighty God, who has walked with me every step of the way, and gave me the wisdom, strength, and guidance in accomplishing this work. I owe it all to HIM!

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CHAPTER 1. INTRODUCTION

Introduction and Rationale

According to the World Health Organization (WHO), unsafe sex is one of the 10 leading risk factors for premature mortality globally and the third leading risk factor in low-income regions. Unsafe sex relates to number of sexual partners, who they are, type of sex involved, knowledge of infection status of partners and use of barrier contraceptives. Unsafe sex is responsible for 99% of HIV infection in Africa and is the leading risk factor for mortality in African women.¹ Cervical cancer accounts for 11% of global deaths due to unsafe sex. Other sexually transmitted infections such as Chlamydia, syphilis and gonorrhoea are entirely attributable to unsafe sex.¹

Although new HIV infections are decreasing across the globe, some countries are still struggling with the epidemic. Sub-Saharan Africa still accounted for 72% of all new HIV infections worldwide in 2011. There have been significant increases in HIV infections in the Asia region, particularly in Bangladesh, Indonesia, Philippines and Sri Lanka. New HIV infections in the Middle East and North Africa region have also increased by 35% between 2001 and 2011. Currently, there are some five million young people living with HIV. Young people account for an estimated 40% of all new HIV infections among adults worldwide and more than 2,400 young people are infected with HIV every day.²

Alongside sexually transmitted infections including HIV/AIDS, teenage pregnancy is another major risk in adolescent sexual and reproductive health. Globally, girls aged 15 – 19 account for about 11% of all births and one in five girls has given birth by the age of 18. According to WHO, lack of contraception due to non-use of contraception or use of ineffective methods

increases the risk of unintended pregnancy and is estimated to result in 90% of unsafe abortions globally. An estimated three million unsafe abortions occur globally every year among girls aged 15 – 19 years.¹ Teenage pregnancy is a major contributor to maternal and child mortality because adolescents are at much higher risks of dying from pregnancy-related causes than older women, as a consequence of unsafe abortions resulting from unintended pregnancies as well as complications in pregnancy and childbirth. Unintended pregnancies are estimated to be responsible for 30% of the disease burden associated with maternal conditions.¹ Complications in pregnancy and childbirth are also the leading cause of global maternal mortality in this age group in many low and middle-income countries. For instance, the risk of maternal death in sub-Saharan Africa during or following pregnancy is very high at 1 in 31 compared to 1 in 4,300 in the developed world.¹

Risk behaviors start in adolescence and unsafe sex, lack of contraception and addictive substances are key risk factors for the health burden faced by young people. Many diseases are caused by more than one risk factor and by the association between multiple risk factors. For example, unsafe sex and drug use (by injection) increase the risk of HIV infection. Other risk behaviors such as harmful drinking and drug use can affect reproductive health by reducing inhibitions and are considered to be markers for sexual risk behavior increasing the risk of HIV/STI infection.^{3,4} Harmful drinking among young people is also an increasing concern in many countries. Alcohol use starts at a young age. About 14% of adolescent girls and 18% of boys aged 13–15 years in low- and middle-income countries are reported to use alcohol. Alcohol reduces self-control and increases risky sexual behavior including violence.¹

The alarming disease burden and mortality among young people that is attributable to sexual risk behaviors make it a global public health threat. The WHO estimates that two-thirds of premature deaths and one-third of the total disease burden in adults are associated with conditions and behaviors that started in their youth, including unprotected sex.¹ During their formative years, children and adolescents develop and shape behaviors that contribute significantly to the lifetime choices they make. Studies show that it is easier to prevent risk behaviors before their onset than to change established behavioral patterns.⁵ This suggests that interventions aimed at positively changing behavior must start during childhood. Promoting healthy behaviors and practices during adolescence that aim to reduce these health risks of young people is therefore critical to overall youth health and development as well as to any country's future.

While adolescents who initiate sexual activity at a young age are at substantial risk, discussions of sexuality and the delivery of sex education programs to this young age group are often difficult and controversial.^{6,7} As a result, sexual risk-taking interventions including HIV prevention have primarily targeted older adolescents for whom it may be too late to delay sexual debut⁸⁻¹⁰ Schools have also been constrained by when it is considered appropriate to begin sex education¹⁰ and it is increasingly difficult to find time in the school day to provide health programs including sexuality education.¹¹

There is a lack of sexuality education in many countries. A global coverage measure related to sexuality education estimates that only 36% of young men and 24% of young women aged 15-24 in low- and middle-income countries have comprehensive and correct knowledge of how to prevent HIV.¹

These constraints place parents in a unique position to provide preventive measures and responsible care to address sexuality and sexual risk behaviors that affect their children. Parents have the primary role of ensuring the optimal growth and development of their children by meeting their physical needs and providing them a safe, nurturing and supportive environment that is conducive to positive behavior patterns. They are therefore key partners in efforts to promote adolescent and reproductive health and can convey values and expectations and communicate important risk prevention messages to their children.¹²

Existing sex education interventions are unable to provide the necessary information on an as-needed basis. Parents, on the other hand, can anticipate their children's needs and be responsive to issues as they emerge. They can therefore determine what messages, values and expectations they can communicate to their children and when to do so in order to ensure that their children internalize their values. Parents are a key socializing agent for their children and therefore have the unique opportunity to engage with their children continuously about sexuality and sexual risk reduction as opposed to time-limited and one-off intervention programs that lack emotional and appraisal support. Parents can model the behavior they would like to see in their children on a day-to-day basis, thereby teaching by example. In addition, there is evidence that children want information about sex and sexuality from their parents.¹³

The adolescent phase is a significant period and the duration of support over this period is a critical element for sustained behavior. Long-term behavior maintenance is often challenging, and the factors that influence maintenance may be different from those that influenced initial behavior change.^{14,15} Parents are well placed to provide constant support and encouragement to

sustain desired behavior. Additionally, parents can tailor messages and discussions to suit the developmental stage and life experiences of the child, gradually building upon prior discussions.

The importance of parents in the sexual education of their children can be conceptualized with reference to the socio-ecological model (*Figure 1*) that identifies five sources of influence on health behavior: individual, interpersonal, organizational, community, and public policy.¹⁶

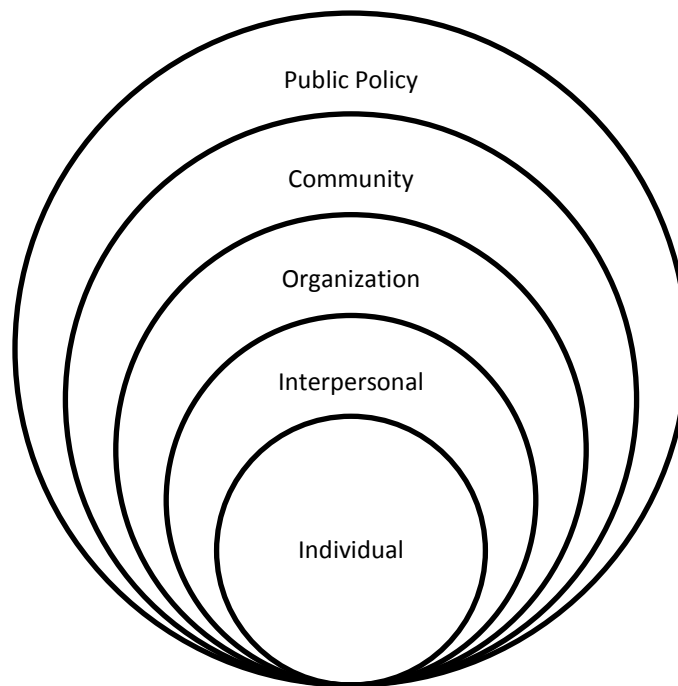


Figure 1 McLeroy's Ecological Model of Health Behavior

The model recognizes that influences on behavior interact across different levels and so there are likely to be multiple risk factors and opportunities for improved health at each level that work together to change behavior. The model also supports multi-level interventions and prevention interventions should ideally address the risks and opportunities at all levels. Healthy behaviors

are maximized when environments and policies support healthful choices, and individuals are motivated and educated to make those choices.¹⁷

The individual level identifies biological, physical and psychological factors that influence the behavior of adolescents, such as age, sex, knowledge, attitudes, and access to health services. Prevention strategies at this level are designed to promote attitudes, beliefs, and improve skills that increase the likelihood of engaging in positive behavior. The interpersonal level is associated with social networks and social support systems (for example, family, work groups, support groups, peers and friends) and examines social norms, and influences on behavior. These interpersonal groups can have strong influences on behavior by providing emotional, instrumental, informational and appraisal support.¹⁸ It is at this level that parenting interventions are situated, although these are, in turn, influenced by all other levels within the socio-ecological framework.

Although evidence exists for the application of socio-ecological models, many intervention strategies aimed at prevention have been focused at the community and broader societal level, neglecting the key influence of parenting.

Parenting Intervention

Parenting intervention in the particular context of the current study is defined as activities or programs directed at parents or parent-child groups and designed to change or strengthen the determinants (the risk and protective factors) that influence child behavior and improve health or development outcome. Desired behavior outcome may include delay of sexual debut, reduction

in the number of sexual partners, use of contraception to avoid unwanted pregnancies, avoid drug injecting, use of health services for diagnosis and treatment of sexually transmitted infections that will ultimately reduce HIV infection, and unsafe abortions.

Parents in this context include biological parents, guardians and caregivers. This study limits parenting interventions to adolescent sexual and reproductive health considered to be a global public health priority.

Parents are a unique resource to provide sexuality education to their children because of the social position they occupy within the family. Involving parents in the delivery of early sexual risk reduction is considered to be one of the most feasible and least controversial approaches.¹⁹

As parents, they have the strongest motivation to ensure that their children's health is not put at risk. They can emphasize the importance of knowing about the risks of HIV transmission, instilling motivation to protect oneself and others, changing expectations of outcomes, developing skills for engaging in and maintaining protective behaviors and providing social support for protective actions.^{20,21} This process has to be continuous and parents are in a powerful position to convey values and expectations and shape attitudes and beliefs of their children. With such ongoing support, children can internalize values and expectations to change and maintain desired behaviors.

Children and adolescents may have little control over their environment to make healthy choices.²² In the same way that parents have much control over food purchases for the home and may be able to control portion sizes and amount of physical activity for the children,²³ parents can structure the social environments of their children to minimize peer and media influence to

reduce sexual risk behaviors. If parents are well equipped, they can nurture strong relationships between themselves and their children, provide training in life skills, and support them in ways that encourage positive health behaviors.

Many socio-cultural and environmental factors have been identified as contributing to behavioral problems including increase in family breakdown, urban and metropolitan sprawl and greater community dissonance.²⁴ Increasing urbanization has led to the breaking-up of extended families - members of the extended family who traditionally provided sexuality education are no longer within reach of those children. Additionally, cultural and religious barriers may continue to exist around parents talking with their children about sex. Parents may have the perception that children are too young to learn about sex or discussing sex with them will encourage experimentation.²⁵ Miller et al (2011) has found that parents' perception of child readiness for sex communication was positively associated with discussion of sex topics and parental responsiveness.²⁶ Parents' lack of knowledge of sexual and reproductive health and discomfort about discussing sex with their children causes them to rely on the school system which is not able to provide sexuality information on an as-needed basis. Hence, the need for parenting interventions to help parents develop necessary skills.

Interventions that are directed at enhancing parenting skills can drive positive changes in parenting styles and child behavior that will reduce the risk factors of unintended pregnancy, unsafe sex and their consequences. An effective parenting intervention that influences adolescent sexual behavior has the potential to help meet two of the Millennium Development Goals (MDGs) that are particularly relevant to young people's health. MDG 5 aims to achieve

universal access to reproductive health, for which one of the indicators is the pregnancy rate among 15 to 19 year old girls, and MDG 6 to halt the spread of HIV/AIDS.

Problem statement: Adolescent sexual risk behavior is of concern globally. Early sexual initiation, multiple partners, and a decrease in the use of condom at first sex²⁷ are risk factors for HIV/STIs and unwanted pregnancies. Young people account for an estimated 40% of all new HIV infections globally and 2,400 are becoming infected every day; three million unsafe abortions occur every year among adolescents due to unwanted pregnancies.² This points to an urgent need to identify ways to promote early prevention and reduction of HIV-related risk behavior. However, one major gap in sexual risk prevention and reduction efforts has been the limited attention paid to parents who are key socializing agents in adolescents' environment and can significantly influence their behaviors.

Purpose statement: The purpose of this thesis is to review relevant literature on parenting interventions related to adolescent sexual & reproductive health with the purpose of assessing the evidence for their effectiveness and identifying components of effective interventions that improve parenting skills and lead to positive adolescent-health outcomes.

Significance statement: This review is relevant for public health practice, as it will analyze and synthesize data on parenting interventions to identify key components of intervention programs that influence adolescent sexual risk behaviors. This new knowledge can be used to guide future parenting intervention design and to review existing programs aimed at improving adolescent sexual health and development.

CHAPTER 2. METHODOLOGY

Introduction: This section outlines the research methods, analyses used, basis for their selection, and any limitations encountered in the data gathering and analysis process. No protocol was submitted for IRB review because there were no human subjects involved in this research. Three databases were searched from 1990 to 2012: PubMed, Google Scholar, and Web of Science. Keywords used in search method included: parent, parenting interventions, communication, health promotion, HIV/AIDS prevention, adolescent, young people, sexual behavior, reproductive health, along with variations of the terms with Boolean connectors ‘and’ and ‘or’. Figure 2 shows a sample of the search strategy used.

Figure 2 Sample Search Strategy for PubMed

```

("parent"[MeSH] OR "parenting"[MeSH] OR "parent-child relation"[MeSH])

AND

("adolescent"[MeSH] OR "teens"[All Fields] OR "teenage" OR "youth" OR "young people")

AND

("sexual behavior"[MeSH] OR "reproductive health"[MeSH])

AND

("health promotion"[MeSH] OR "health education"[MeSH] OR "sexual risk-reduction"[MeSH] OR "sex
counseling" OR "HIV education" OR "communication"[MeSH] OR "HIV/AIDS prevention"[MeSH])

AND

("interventions"[MeSH OR "intervention studies" OR "family intervention" OR "parenting intervention"[MeSH
OR "systematic review" OR "outcome studies" OR "randomized controlled trial"[MeSH] OR "comparison
group" OR "control group" OR "nonrandomized")

AND

(English[Lang])

AND

("1990"[PDAT]: "2012"[PDAT])

```

Research Design and Study characteristics

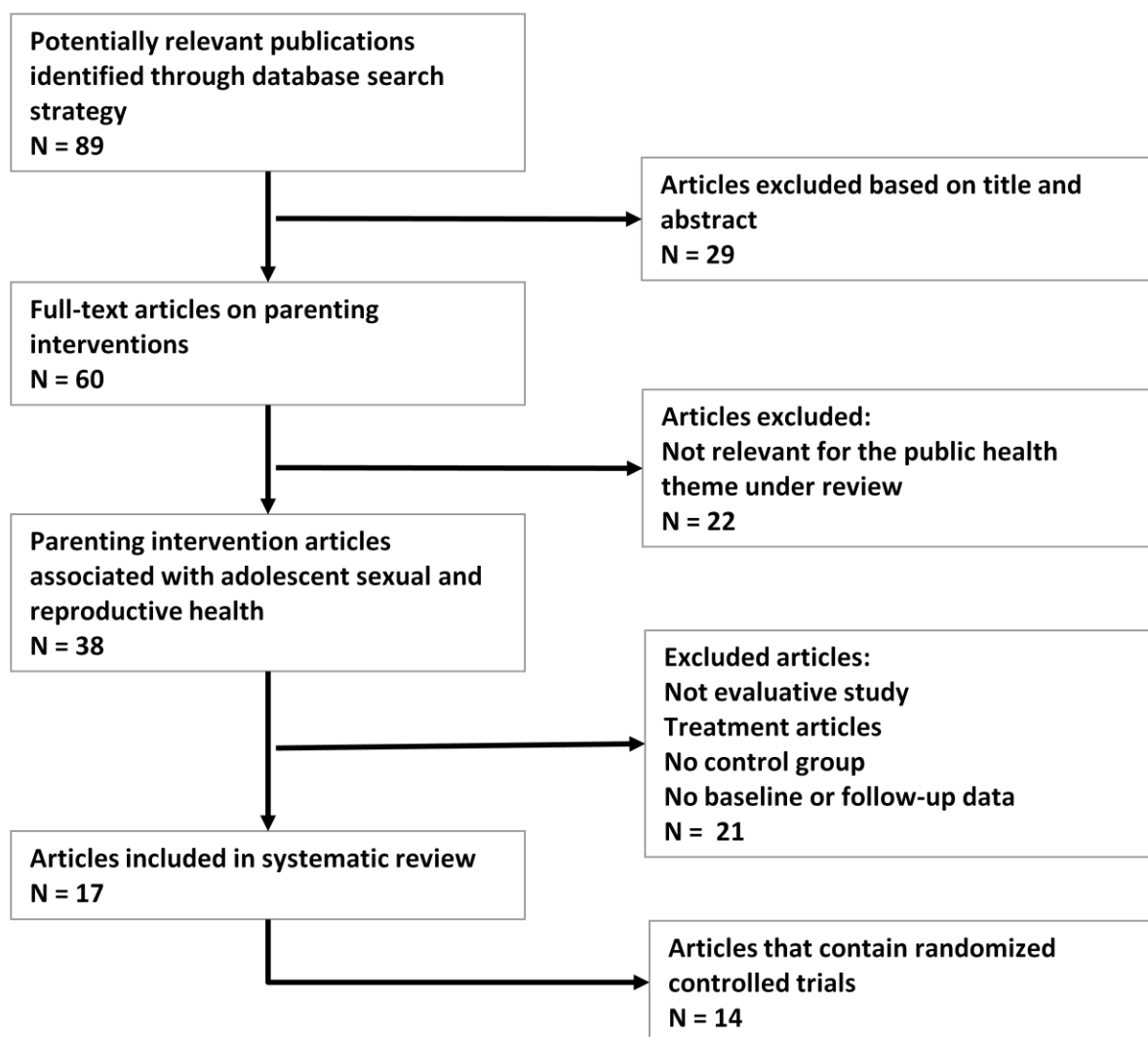
Articles were reviewed based on the title. If they appeared relevant to research objectives, the abstracts were then reviewed, followed by the full-text if the abstract appeared relevant. The inclusion and exclusion criteria below were used to select relevant articles for this study. Figure 3 shows the flow diagram used to identify the relevant studies for review.

Inclusion criteria:

- Intervention targets parents of preadolescents aged 9 to 14 and adolescents aged 15 to 19.
- Intervention is related to adolescent sexual risk behavior and reproductive health.
- Article uses deductive approach to intervention studies (validity of results has factual basis; interventions have been evaluated).
- Intervention evaluations have used randomized controlled trials, nonrandomized controlled trials (quasi-experimental study) or other longitudinal study designs.
- Relevant articles from 1990 to 2012.

Exclusion criteria:

- Full-text articles do not contain data on intervention outcomes.
- Child age groups cannot be clearly stratified for easy comparison of intervention studies.
- No baseline data.
- No follow-up data and no control group to measure effectiveness of intervention.
- Articles on HIV/AIDS treatment.

Figure 3 Systematic Review Flow Diagram**Data extraction and analysis**

Information gathered on interventions included intervention type and year conducted; study design (randomized or non-randomized controlled trials or pretest/posttest studies); geographical location (North America, Latin America, Europe, Africa, Asia); intervention setting (home, school or community); target group and sample size (parent only or parent-child participants); number of sessions or duration of intervention and attrition; intervention outcome (desired health

or behavior outcome); and the theoretical basis upon which the intervention was designed, if available.

Outcome measures:

Outcome measures selected for review were based on behavioral and social theories. Considering that the ultimate goal of the parenting intervention is to positively influence child behavior and improve health outcomes, data relating to specific behaviors were extracted as primary outcomes. These included sexual risk behavior such as sex initiation, frequency of engaging in unprotected sex, number of sexual partners, use of condoms and contraception as well as pregnancy rate and STI/HIV prevalence. Secondary outcomes included parent and child characteristics relating to knowledge, skills, beliefs and attitudes, self-efficacy, behavioral intentions, parenting practices and parent-child communication.

CHAPTER 3. RESULTS

Introduction: This section describes key findings from the systematic review of the literature including intervention design characteristics, key program components, parent and child outcome measures and effects. Seventeen studies were identified for this review as indicated below. A qualitative approach was adopted in gathering, analyzing and reporting evidence of parenting interventions. A quantitative meta-analysis of the relevant data was not possible because of the wide range of interventions and the variability in outcome measures.

Intervention Studies Reviewed:

1. Parents Matter! Program (PMP)²⁸
2. Saving Sex for Later²⁹
3. Familias Unidas³⁰
4. Managing the Pressures before Marriage (MPM)³¹
5. Mother-Daughter Risk Reduction (MDRR)³²
6. Keepin' It R.E.A.L!³³
7. Facts and Feelings³⁴
8. Collaborative HIV/AIDS Adolescent Mental Health Project (CHAMP)³⁵
9. Reaching Adolescents and Parents (RAP) program³⁶
10. Talking Parents, Healthy Teens³⁷
11. Families Talking Together³⁸
12. Sharing Healthy Adolescent and Parent Experiences (SHAPE)³⁹
13. REAL Men⁴⁰
14. Families Matter! Program (FMP)¹²
15. Intervention with Microfinance for AIDS and Gender Equity (IMAGE)⁴¹
16. CHAMP South Africa (CHAMPSA)⁴²
17. Strong African American Families (SAAF)⁴³

Overview of parenting intervention outcomes

All the studies varied widely in the program components of the intervention. While some studies focused on abstinence or general sex education, others targeted sexual risk reduction including HIV prevention. Some studies also targeted multiple health behaviors, assessing primary and/or secondary outcomes. Measures used to assess the efficacy of the interventions also varied widely due to the different theoretical frameworks adopted or by author's own design. Thus, it is difficult to find two studies measuring the same outcome with the same set of items in the construct.

Summary of Intervention Study Characteristics

Of the 17 studies reviewed, fourteen were conducted in the USA^{28-40,43} while three studies were conducted in Africa.^{12,41,42} Two studies conducted in Africa were adaptations of US evidenced-based interventions.^{12,44} Fourteen studies^{28-34,36-38,40-43} were conducted as randomized controlled trials, two studies^{35,39} as nonrandomized control trials, and one study¹² employed a pre-test/post-test design. One intervention was a pilot study⁴¹. The studies used health experts and facilitators to deliver the interventions in a variety of settings, including home, school, worksite and community and employed multiple strategies in their training sessions. Two interventions used a single media element where CDs²⁹ and videos³⁴ were disseminated to the parents at home. Nine intervention studies^{12,28-30,32,37,38,40,41} were parent-focused and eight studies^{31,33-36,39,42,43} were family-focused, in which the intervention targeted children but required active participation of parents. Five studies were gender-focused - three studies targeted women and mothers^{33,38,41}; one study targeted father-son participants⁴⁰; and one study targeted mother-daughter participants³². **Table 1** provides more details on the study design characteristics of each of the 17

interventions. In the next section, key program components and the evidence for the efficacy or effectiveness of each intervention are described.

Key Program Components and Outcome Effects

The findings from the interventions presented below have been categorized under primary outcomes, for studies that investigated sexual behavioral outcomes and secondary outcomes, for studies that focused on improving parent-child communication, parenting practices, skills and self-efficacy, knowledge on sexuality and sexual risk reduction, as well as changing beliefs and attitudes about sexuality. *Table 2* provides a summary of the intervention program components and objectives, outcome measures used and the evidence for the effectiveness of the intervention.

Primary Outcomes:

Twelve studies focused on sexual risk reduction including eight studies^{30,32,33,35,40-42} that were directed at HIV prevention. The studies examined intervention effects on abstinence and sexual initiation, sexual activity and condom use, as well as sexual behavior resulting from substance use.

The **Parents Matter! Program (PMP)**²⁸ is a parent-based sexual risk-reduction program for African-American pre-adolescents (aged 9-12) and sponsored by the Centers for Disease Control and Prevention (CDC). The intervention included three arms: enhanced, single-session and control. The enhanced intervention included five weekly sessions that focused on raising parents' awareness of adolescent sexual behavior and taught parents how to reduce such risks through positive reinforcement, monitoring, parent-child communication about sexual topics and parents' responsiveness in communicating with their preadolescents about sexual behavior.

Preadolescents attended part of the fifth session so that parents could practice their communication skills. The single-session intervention covered the same topics as the enhanced intervention in a single-lecture format and parents did not have the opportunity to practice their communication skills. The control arm focused on general health issues and how parents can help their preadolescents to reduce the risk of obesity, diabetes, cardiovascular disease and hypertension. The study found that preadolescents whose parents attended all 5 sessions of the enhanced intervention were less likely to be at high sexual risk at the 12-month follow-up (that is, having had or anticipating having sexual intercourse during the next year) than preadolescents whose parents were in the control group (relative risk, 0.65; 95% confidence interval, 0.41-1.03) and single-session group (relative risk, 0.62; 95% confidence interval, 0.40-0.97).

The **Saving Sex for Later**²⁹ program is a parent education intervention aimed at delaying early sexual initiation among fifth and sixth graders. The program was funded by the National Institute for Child Health and Human Development and consists of three audio CDs that were mailed to parents over a six-month period. This was to help parents identify opportunities to talk with their adolescents about values and expectations, household rules, and how parents can appropriately respond to adolescent development and warning signs. Topics included pubertal changes, peer pressures and media influences. One CD was mailed about every 10 weeks; the CDs were intended to be listened to sequentially to reinforce key messages and sustain parental communication. The study measured behavioral risks. The baseline behavioral risk measure assessed 'lifetime' behavior: whether youths had a boyfriend or girlfriend, had kissed, held hands, kissed and hugged for a long time. The follow-up behavior risk measure assessed recent behaviors including whether in the past month youth had watched TV and movie shows

disapproved of by a parent, hung out with opposite-sex peers disapproved of by a parent, had a girlfriend or boyfriend, and kissed and hugged for a long time. The study found that youth in the intervention group reported lower behavioral risk than youth in the control group ($p < 0.05$).

Familias Unidas³⁰ is a family intervention which targeted delinquent youth and was designed to reduce HIV risk behaviors among high-risk Hispanic youth aged 12 to 17 years. The National Institute on Drug Abuse supported the study, which included 12 sessions for the intervention group that were parent-focused, with adolescents participating in four family visits. The sessions focused on positive parenting, family communication, parental monitoring and adolescent HIV risk behaviors. The control group received standard care services that included referrals to a network of community-based agencies that address problem behaviors and may provide individual or family therapy. The study showed that youth in the intervention group were 39% less likely to report inconsistent use of condoms during vaginal sex in the past 90 days than the control group (relative risk, 0.61; 95% confidence interval, 0.39 - 0.87). The percentage of youth reporting that they always used condoms in the intervention group increased whereas it decreased for the control group. There was no significant difference in unprotected vaginal sex at last intercourse between intervention and control group but the difference in unprotected anal sex was significant at last intercourse (relative risk, 0.24; 95% confidence interval, 0.07 - 0.90). The mean number of days that youth in the intervention group engaged in sex without a condom under the influence of alcohol and/or drugs decreased significantly, while it increased for those in the control group (incidence rate ratio, 0.36; 95% confidence interval, 0.22 - 0.58). The number of sexual partners in the past 90 days also significantly decreased at 6 months post baseline for the intervention group compared to the control group (relative risk, 0.35; 95%

confidence interval, 0.28 - 0.44). The reported incidence of STI was too small for any meaningful interpretation.

The **Managing the Pressures before Marriage (MPM)** program³¹ is a school-based abstinence-only curriculum developed by the Center for Adolescent Reproductive Health at Grady Memorial Hospital and was designed to improve parent-child communication to prevent early onset of sexual intercourse. The intervention group received an enhanced curriculum that included five homework assignments to be completed by both students and parents. The MPM program addresses risks of early sexual involvement, social and media pressures to become sexually active, and assertiveness and communication skills adolescents need to resist peer pressure. It also emphasizes abstinence until marriage as the expected standard of behavior. The homework assignments focused on increasing parents' understanding of the changes and pressures their adolescents face and aimed to facilitate open and responsive discussion about sex and sexuality and how to reduce the risks of pregnancy, HIV and STI. The assignments did not stress abstinence until marriage. Adolescents in the MPM-enhanced group were significantly less likely than adolescent in the MPM-only group to have sex before finishing high school ($p < 0.01$). No significant difference existed between the MPM-only and MPM-enhanced groups among those who have had sexual intercourse before or sexual intercourse in the past three months. However, for the MPM-enhanced group, a pair-wise comparison showed that the percentage of adolescents who have had sexual intercourse in the past three months was significantly lower for those who did any of the homework assignments compared to those who did none of the homework ($p < 0.01$). Similar results were found among adolescents who had gone further than they had wanted to sexually within the previous three months ($p < 0.001$).

Regarding the number of activities completed in the homework, adolescents who completed fewer homework activities (≤ 3) were more likely than those who completed more (≥ 4) to say that they went further than they wanted to sexually in the past three months ($p < 0.05$).

The **Mother/Daughter Risk reduction (MDRR)** program³² is an HIV risk reduction intervention delivered by mothers to their daughters and was designed to reduce sexual activity, increase HIV transmission knowledge, self-efficacy and intention to refuse sex or use condoms among adolescent girls. Mothers in the MDRR program received 12 weeks of training in HIV knowledge, risk reduction and behavioral skills that they had to teach their daughters. There were two control interventions: the mother/daughter health promotion intervention (MDHP) and the health expert HIV risk reduction intervention (HERR). Mothers delivered the MDHP intervention to their daughters. The MDHP intervention consisted of content related to nutrition and exercise whilst the HERR was delivered by female health professionals and covered the same content as the MDRR. The use of female health professionals to deliver the same intervention for a separate group was to allow comparison between the MDRR and HERR groups and determine the impact of mothers as sex educators. The study showed no differences in sexual activity as defined in the study (that is, engaging in sex in the last 6 months) between girls receiving the MDRR and HERR interventions at immediate post-test and 6-months follow-up. However, at immediate post-test, girls receiving the HIV risk reduction intervention (MDRR and HERR) were less likely than girls receiving the MDHP intervention to be sexually active ($p < 0.01$).

A mother-adolescent HIV prevention program, **Keepin' It R.E.AL!**³³ employed two treatment groups and a control group. The adolescents were recruited from the Boys and Girls Clubs of Metro-Atlanta (BGCMA), a community-based organization that serves predominantly African Americans. One treatment group received a social cognitive theory-based (SCT) intervention in seven sessions over a 14-week period. In the SCT group, mothers and adolescents attended four sessions together and three sessions separately. The combined session covered contents on HIV transmission and protection, communication skills about sex and values. The adolescent sessions focused on peer pressures and sexual decision making whilst the mother sessions focused on adolescent development and reproductive health, peer pressure, discussion of difficult sex topics including condom use and contraceptives. The other treatment group received a life-skills (LSK) intervention in which mothers and adolescents attended seven sessions separately except for portions of the first and last sessions. In the adolescent sessions, at-risk behaviors such as smoking, alcohol and drug use, violence and early sexual intercourse were discussed. In the mother sessions, their experiences were used to explore parenting problems and how to address them. The control group had a single session on HIV education, transmission risk and prevention. The study showed no difference among groups in abstinence rates for adolescents. However, adolescents in the SCT and LSK interventions were more likely than controls to report higher condom use rates the last time they had sex ($p < 0.05$).

Fact and Feelings³⁴ is a home-based video sex education program intended to help parents talk to their adolescents aged 10 to 14 years about sexuality with emphasis on sexual abstinence. The videos discussed changes related to puberty, pregnancy, consequences of sexual involvement and refusal skills. No significant difference in sexual behaviors existed between adolescents whose

families received the videos and those whose families did not receive the videos. Similar results were reported on intention to have sexual intercourse before marriage or during the upcoming year.

CHAMP³⁵ is a family-based HIV prevention intervention designed to equip pre-adolescents (aged 9-11) to resist pressure to engage in unprotected sexual activity, and by extension prevent HIV risk exposure. The program was conducted over 12 sessions and focused on: "(a) increasing parent/caregivers' and youth comfort in discussing puberty and the development of romantic or sexual feelings; (b) reducing time spent in sexual possibility situations; (c) increasing parental effectiveness around supervision and monitoring of youth in general, and of sexual possibility situations, in particular; (d) clarifying family values about sexual choices; and (e) increasing parent and youth's knowledge about risks related to HIV/AIDS."³⁵ (p. 205) The children were asked how often, how long, and how many times they were in unsupervised situations with children of opposite sex. The control group examined family and mental health factors related to HIV risk exposure during the transition to adolescence. This program did not include any HIV prevention content. There was no significant pre-post change in the frequency of situations of sexual possibility for the intervention group. However, children in the intervention group reported that they were in situations of sexual possibility significantly less often than the children in the control group ($p < 0.01$).

Reaching Adolescents and Parents (RAP)³⁶ was also a family-focused program but focused on adolescents to improve parent-child communication and delay sexual debut. There were six sessions for adolescents only, one session for parents and one joint session. The study assessed

sexual behavior outcomes by measuring pregnancy rate but there was no significant change between the intervention group and the untreated control group.

The **Families Talking Together**³⁸ program is a parent-based sexual risk reduction intervention targeting adolescents aged 11-14 years. The intervention was delivered in a primary healthcare clinic setting when mothers took their adolescent children for a physical examination. It consisted of several components - a face-to-face session between mothers and a social work interventionist, an educational packet to teach parents about effective communication and parenting strategies for reducing adolescent sexual risk behavior, physician's endorsement of the intervention program and booster calls to reinforce program effectiveness. The primary measure of interest was adolescent sexual activity. Adolescents were asked whether they had ever engaged in vaginal intercourse, frequency of sexual intercourse in the past 30 days, whether they had ever given oral sex to a member of the opposite sex or had ever received oral sex from a member of the opposite sex. While the proportion of adolescents in the intervention group who had vaginal intercourse remained about the same at 9-month follow-up, the proportion increased significantly for adolescents in the control group ($p < 0.05$). The frequency of sexual intercourse in the past 30 days was also significantly lower for the intervention group compared to the control group.

REAL Men⁴⁰, a father-son HIV prevention intervention was designed to promote adolescents' delay of sexual intercourse and condom use among those who were sexually active, and also improve communication on sexuality and parental monitoring. Fathers attended six sessions alone with their sons participating in a final session. The control group had sessions on nutrition

and exercise and included information about the benefits of maintaining a healthy lifestyle, eating fruits and vegetables, estimating serving size, how to read and interpret food labels as well and the benefits of exercising. At 12 months follow-up, there were no significant changes in intimate behaviors or sexual abstinence. However, a significantly lower proportion of sexually active adolescent boys in the intervention group than the control group reported they had sex without a condom ($p < 0.05$).

The **Strong African American Families (SAAF)**⁴³ program, a family-based preventive intervention was specially designed for rural African Americans to deter early sexual onset and the initiation and escalation of alcohol and drug use among rural African American preadolescents. **SAAF**⁴³ attempted to enhance family protective processes to strengthen factors that protect youths from engaging in high-risk behaviors. Parents and adolescents in the intervention group attended seven sessions separately followed by a joint parent-adolescent discussion. Parents were taught parental monitoring skills, racial socialization strategies, strategies to communicate about sex, and conveying clear expectation about alcohol use and sexual risk behavior. Adolescents were taught the importance of having and abiding by household rules, setting goals for the future and making plans to achieve them, and self-efficacy strategies. In the combined session, parents and adolescents demonstrated their communication skills and engaged in activities that promoted family cohesion and involvement. The control group received general information on adolescent development, stress management and suggestions to encourage adolescents to exercise. Adolescents were assessed four times from ages 11 until 17 years. Compared to the adolescents in the control group at the 65-month follow-up, fewer adolescents in the **SAAF**⁴³ program at age 17 years had ever had sex, and those who

had become sexually active reported a lower frequency of sexual intercourse and greater likelihood of using condoms during sex.

Secondary Outcomes

Knowledge, Attitudes, Norms and Beliefs

Six studies^{12,31-33,42,43} examined intervention effect on knowledge, norms, attitudes and beliefs relating to sexuality and sexual risk behaviors. The **Families Matter! Program (FMP)**¹² is an adaptation of the Parents Matter! Program delivered in Kenya and provided parenting strategies and skills to increase effective parent-child communication, parenting skills and the knowledge, skills, comfort, and confidence to communicate with their children (aged 10-12 years) about sexual topics. The study assessed parental attitudes about sexuality education with measures that included 'I think my child is still too young to learn about sex issues' and 'Teaching children about condoms & birth control is giving them permission to have sex'. The study showed that attitudes that potentially prevent sexual communication with children decreased at post-intervention and this was significant for all items except for two items: 'my child is ready to learn about sex' and 'my child should learn about sex before he/she starts sexual behaviors'. Attitudes about the appropriateness of talking to children about sex also improved significantly on two items with the third item, 'talking to my child will encourage sex', nearly reaching the statistical significance used in the study ($p < 0.008$).

The **MPM**³¹ intervention assessed adolescents' knowledge of abstinence effectiveness and pregnancy risk as well as sexual beliefs and attitudes relating to delay in sex initiation. The results at post-intervention showed that adolescents were significantly more likely to know of the effectiveness of abstinence as a way to prevent sexual risks than at baseline. However,

adolescent level of knowledge of the risk of pregnancy did not change significantly from baseline. Adolescents' belief that peers and friends supported abstinence and media encouraged sex was significantly stronger at post-intervention than at baseline. Compared to the control group, all assessed sexual beliefs and attitudes were not significantly different for the intervention group except that the intervention group was less likely to expect sex in their next relationship for adolescents who had had sex before ($p < 0.05$).

Compared to the adolescents in the control group, adolescents in the **SAAF**⁴³ program reported significant increase in self-pride and positive sexual norms dissuading them from engaging in sexual risk behavior. The **MDRR** program³² showed significant difference in condom attitude between the intervention groups that received the HIV risk reduction education and the control group that received only health promotion on nutrition and exercise ($p < 0.01$ at both immediate post-test and 6-months follow-up).

The **Keepin' It R.E.A.L.** program³³ showed a significant increase in the HIV knowledge over time for mothers and adolescents who participated in the program. The **CHAMP SA** program⁴² is a pilot study adapted from the US-based **CHAMP**³⁵ program and delivered in South Africa. The program aimed at preventing HIV infection among the youth by promoting resiliency in pre-adolescents (aged 10-11) and their families. Topics covered in the program included parenting styles, parental monitoring, parent-child communication, pubertal changes, accurate knowledge about HIV, and identifying and developing strategies to avoid high risk situations. The study assessed HIV transmission knowledge, myths relating to HIV transmission and stigma associated with HIV infection. The intervention group showed significantly greater HIV knowledge than

the control group. Stigmatizing attitudes decreased significantly from baseline to post-intervention but the mean change in score between the intervention group and the control group was not significant.

Parent-Child Communication about Sexuality

All the studies except two^{32,38} examined outcomes on parent-child communication. In broad terms, the communication measures included frequency of communication, content of topics discussed, comfort and openness in communication and self-efficacy. The assessment items used in these measures varied as widely across studies as the definitions of the measures.

Frequency and Content of Discussions

Fourteen studies examined frequency and content of discussions relating to sexuality and sexual risk reduction topics, including pubertal changes, sex initiation, reproduction, HIV/AIDS and condom use. Eleven studies^{12,28,29,33,34,37,39-43} that reported data on parents showed an increase in frequency and content of discussion of sexual issues. Out of eleven studies that reported data on adolescents' frequency and content of discussing sexual issues with their parents, seven studies^{12,28,31,34,37} reported an increase in frequency or number of topics discussed, while six studies^{33,34,36,39-41} reported no or marginal change at post-intervention or 12-month follow-up surveys.

The **Parents Matter! Program**²⁸ assessed both parent and adolescent reports on sexual communication with the same items. For example, parents were asked, "How many times have you talked to your child about what sex is?" and adolescents were asked, "How many times has

your parent talked to you about what sex is?" Both parents and adolescents in the enhanced intervention group reported a higher mean difference score from baseline, suggesting more sexual communication than parents and adolescent in the single-session and control groups. Similarly, the **Families Matter! Program**¹² showed significant improvements for both parents and adolescents in sexuality communication and sexual risk reduction communication from baseline to the 12-month follow-up ($p < 0.001$).

The **Saving Sex for Later**²⁹ program assessed parent-reported parent-child communication. Parents in the intervention group were significantly more likely than controls to score higher on communication (adjusted odds ratio, 2.45; 95% confidence interval, 1.53–3.92). In the **MPM** intervention,³¹ students in the enhanced-**MPM** program reported significantly more frequent parent-child communication than students in the **MPM**-only intervention, especially in communication about prevention strategies and consequences of sexual intercourse.

The **Microfinance for AIDS and Gender Equity (IMAGE)**⁴¹ was an intervention program delivered in South Africa to address HIV, gender awareness, and actively promote open discussions about sex between adults and young people. Women in the intervention group were significantly more likely than the controls to communicate more often with their own or friends' children about sex and sexuality (adjusted risk ratio, 1.59; 95% confidence interval, 1.31–1.93). Additionally, among women in intervention group who reported communicating with children, about 98% discussed condom use while 58% discussed HIV testing.

The **Keepin' It R.E.A.L.!** program³³ showed an increase in communication over time as reported by both mothers and adolescent but there were no differences between intervention and control groups, except for the percentage of sex-related topics discussed. Mothers in the social cognitive theory-based intervention had talked about more of the topics during the preceding three months compared to the mothers in the control group.

For the **Facts and Feelings** program,³⁴ the 3-month post-intervention assessment showed a significant increase in parent-adolescent communication about sexual topics for families that received the sex education videos compared to the families that did not receive the videos. However, this increase was lost at 12-month follow-up.

The **CHAMP**³⁵ program assessed 'average intensity of discussion (family conflict)'. The measure asked children to indicate if they had discussed 17 topics with their caregiver in the past two weeks, and for each topic discussed, children indicated how many times the topic was discussed in the past two weeks and how intense the discussions were. The children in the intervention group reported significantly higher family conflict than the children in the control group did ($p < 0.01$). Similarly, the **CHAMP SA**⁴² program assessed parent-child communication on 'Hard to talk about' subjects, a 7-item measure of topics that parents had difficulty talking about with their children. The response options ranged from talked about 'a lot' to 'never' on topics such as HIV/AIDS, puberty, sex, alcohol and drugs. Parents in the intervention group were significantly more likely than the controls to engage frequently in discussing difficult topics ($p < 0.05$). The **RAP** program³⁸ showed an increase in parent-child communication at post-intervention but not at 12-month follow-up.

The **Talking Parents, Healthy Teens** program³⁷ is a theory-based worksite parenting intervention to help parents become more comfortable and skilled at communicating with adolescents about sexual health. The program consisted of eight weekly sessions and also helped parents to teach their children about communication, assertiveness, decision-making skills and how to effectively supervise their children. The study assessed parent-adolescent communication about a list of sexual topics. It also assessed whether parents taught adolescents how to use a condom. The intervention group discussed significantly more new topics and repeated more topics than the control group ($p < 0.001$). More adolescents in the intervention group than the control group indicated that their parents have reviewed the steps of how to use a condom with them ($p < 0.001$).

The **SHAPE** program³⁹ is a family-based intervention in which parents and their children attended six two-hour sessions together where they were exposed to a curriculum aimed at delaying sexual intercourse and to prevent risky sexual behaviors. With the control group, adolescents received a reduced number of curriculum sessions. Parents did not participate in the sessions. The study showed that parents participating in the program significantly increased communication with their child about sexual harassment/abuse, sexually transmitted infections and vaginal intercourse compared to the control group ($p < 0.05$).

The **Talking Parents, Healthy Teens**³⁷ and **SHAPE**³⁹ programs focused on improving parent-child communication and did not report any primary outcomes on adolescent sexual behavior. The **REAL Men** study⁴⁰ measured sexual communication between fathers and sons. At 3-month and 12-month follow-up, fathers in the intervention group reported more discussion of sex-

related topics compared to fathers in the control group. However, adolescents' reports were not significant for all assessment surveys. The **SAAF** program⁴³ also assessed parent-child communication about sex and parents in the intervention group reported significant increase in sexuality communication.

Comfort and Openness in Communicating

In five of six studies^{30,33,37,41,43} that examined comfort or openness in communicating about sex issues, parents reported higher comfort in communicating. Five studies reported adolescents' comfort in communicating about sex issues - two studies^{37,41} reported increased comfort while three studies^{31,33,39} did not show any significant change in comfort.

Parent-child communication in the **Familias Unidas**³⁰ program was measured by assessing the extent to which there was open and honest communication. The parent-only report showed that parents in the intervention group had significantly higher parent-adolescent communication than parents in the control group (adjusted mean difference, 2.51; 95% confidence interval, 2.31 to 2.72).

The **MPM** program³¹ also assessed students' comfort in communicating with parents about sex. The comfort of students in the enhanced-MPM intervention was not significantly different from student in the **MPM**-only intervention. In the **IMAGE** program⁴¹, openness to discuss sex and sexuality in the household was assessed. Both mothers and young people in the intervention group reported that they felt more free and open to discuss sexuality issues. The **Talking Parents, Healthy Teens** program³⁷ also assessed communication openness. At 9-months follow-

up, both parent and adolescents in the intervention group reported significantly more open communication about sex than those in the control group ($p < 0.001$).

For the **Keepin' It R.E.A.L.!** program³³ mothers in both the social cognitive intervention and life skills program indicated significantly more comfort in discussing sexual topics than those in the control group ($p < 0.05$). However, adolescent report of their comfort talking to their mother about sex was not significant. Similar results were found in the **SHAPE** program³⁹ in which change in adolescents' comfort in communicating with parents and friends about sexual issues was not significant. The **SAAF** program⁴³ measured 'general communication'. This measure assessed the degree of openness in family communication. Parents in the **SAAF**⁴³ program reported more open communication compared to parents in the control group.

Self-Efficacy for Communicating

Five studies^{12,28,29,37,42} examined intervention effects on self-efficacy to communicate about sex-related topics. In all the studies, parents reported an increase in self-efficacy for communicating. Two studies^{12,28} assessed adolescents' perception of their parents' self-efficacy in discussing sexual topics and in both studies adolescents reported an increase in their perception of parental self-efficacy. One study³⁷ reported an increase in adolescents' ability to communicate with their parents on sex topics.

The **Parents Matter! Program**²⁸ assessed 'parental responsiveness' defined as parents comfort and confidence in communicating with their preadolescents about sexual behavior. Parents rated five items, for example, "I feel prepared to talk with my child about sexual topics as he/she gets older". Preadolescents' perception of their parents' responsiveness to discussing sexual issues was

also assessed. Both parents and preadolescents reported increased responsiveness for all assessments surveys as indicated by higher mean changes from the baseline scores. Similarly, the **Families Matter! Program**¹² assessed parental responsiveness on 12 items that related to parental knowledge, skills, comfort and confidence in discussing sex topics (for example, "I have enough information about sex issues to talk to my child", "I know how to talk to my child about sex issues", "I can answer the questions my child has about sex issues"). Parents and preadolescents separately reported significantly higher responsiveness at 12-month follow-up ($p < 0.001$).

In the **Saving Sex for Later** program,²⁹ parents in the intervention group were significantly more likely than controls to have high self-efficacy in discussing pubertal development and sexuality (adjusted odds ratio, 1.94; 95% confidence interval, 1.21 to 3.11).

In the **CHAMP SA** program,⁴² parents were assessed on how likely they were to respond to their child about sexual communication. Responses were scored on dimensions of passive, manipulative, aggressive or assertive parental communication styles.⁴² Results showed that parents in the intervention group were significantly more likely than controls to endorse assertive styles of communicating over passive, manipulative and aggressive communication styles ($p < 0.01$). On communication ability, the **Talking Parents, Healthy Teens** program³⁷ assessed a single item asking parents/adolescents to rate their ability to communicate with child/parent on sexual topics. Parents and adolescents in the intervention group reported significantly greater ability than controls to communicate with each other about sexual topics.

Parenting Practices

Five studies^{12,29,30,35,43} had more extensive components that examined intervention effect on other parenting practices in addition to parent-child communication. One study¹² reported changes in parent-child relationship, with adolescents reporting improvements in their relationship with parents, but parents' reports being insignificant. In one study²⁹, adolescents reported increase in family support. In two studies^{12,30}, parents and adolescents reported significant changes in positive parenting or positive reinforcement. Three studies assessed parents' report of changes in parental monitoring - one study¹² reported an increase in parental monitoring while two studies^{29,30} did not report any significant change. In one study²⁹, parents reported an increase in their perceived influence over their child's behavior. Three studies^{12,29,35} also assessed parental monitoring from adolescents' perspective and all studies reported increases in parental monitoring, control, or family rules.

The **Families Matter! Program**¹² provided parents with skills known to reduce sexual risk behavior among adolescents. These included building strong parent-child relationship, effective parental monitoring and the use of positive reinforcement. For example, parents were asked to rate their responses on items such as: 'I am happy with how my child and I get along'; 'When your child behaves or does a good thing, how often do you reward her/him?'; 'How often do you know about where your child goes when s/he is not at home?'. The questions were reframed for adolescent responses. Reports from both parents and adolescents showed significant improvement between pretest and posttest survey in parenting practices, except that parents' report of the parent-child relationship did not show significant improvement.

The **Saving Sex for Later** program²⁹ assessed parental oversight at baseline with two items: how often parents know what their son or daughter is doing when he or she is not at home or at school, and how often parents know what friends their child is hanging out with, but replaced during the follow-up survey with an expanded measure of 7 items to assess parental monitoring. The survey also assessed perceived parental influence over children's behavior at follow-up. For example, parents were asked how much influence they think they have over whether their daughter has sexual intercourse before she is 16 years old. Parents in the intervention group were significantly more likely than controls to score high on parental influence (adjusted odds ratio, 2.15; 95% confidence interval, 1.36–3.41). However, the score on parental monitoring between intervention group and the control group was marginal. The youth were also assessed on their report of family support, family monitoring (at baseline), and family rules (at follow-up) about youth behavior. For example, youth were asked to indicate the extent to which they agreed or disagreed on items such as: "there are adults in my family to talk to when something is important" and answer 'yes' or 'no' to whether their parents have rules about what movies and TV shows they can watch. Youths in the intervention group were significantly more likely than youth in the control group to report high family support ($p < 0.05$) and more family rules ($p < 0.05$).

Familias Unidas program³⁰ assessed positive parenting, that is, the extent to which parents used positive affirmation and appraisal, and parental monitoring, that is, the extent to which parents spent time with, monitored and knew the friends of their children. Parents in the intervention group reported significantly higher positive parenting compared to the control group but there was no significant difference reported for parental monitoring.

The **CHAMP** program³⁵ also assessed an adolescent-reported indicator of parental control. The preadolescents were asked to rate their parents role in decision making from restrictive control (low score) to low control (high score). The preadolescents in the intervention group reported significantly lower scores than the preadolescents in the control group, suggesting that parents in the intervention group had greater parental control than parents in the control group ($p < 0.001$).

The **SAAF**⁴³ assessed 'involved-vigilant parenting', a composite measure that assessed the frequency of parental behaviors that relate to involvement, inductive discipline, consistent discipline and monitoring.⁴³ For example, parents were asked: "When you and your child have a problem, how often can the two of you figure out how to deal with it?", "When your child doesn't know why you make certain rules, how often do you explain the reason?" and "How often do you discipline this child for something at one time and at other times not discipline him or her for the same thing?" Compared with the parents in the control group, parents participating in the **SAAF**⁴³ program demonstrated higher levels of intervention-induced parenting behaviors.

CHAPTER 4. DISCUSSION/CONCLUSION

Introduction

Based on the information provided by the studies reviewed, it appears most of the interventions were beneficial, improving some behaviors without any indications of adverse effect. However, differences existed between studies in measures, outcomes, and their effectiveness. Additionally, there were mixed results in individual studies showing positive intervention effects in some measures while other measures did not show any significant changes. This section discusses key differences in the findings, limitations of the current study in adequately assessing the effectiveness of the interventions and the implications for public health practice. It also presents a conceptual model developed from the analysis of the findings that may be a useful guide for the design and review of future parenting interventions. Limitations in the evidence provided by the various studies were identified and recommendations made for future research.

Intervention Effectiveness

Primary vs. Secondary Outcomes

Most of the outcomes from the studies were focused on psychosocial risk factors such as knowledge, self-efficacy, behavioral intentions and communication. Although 12 studies assessed sexual risk behaviors, including eight studies that targeted HIV risk prevention, less than half of those studies^{30,33,38,40,43} measured at least one actual behavioral change such as condom use, reduction in the number of sexual partners and frequency of unprotected sex. Additionally, only two studies^{30,36} reported biological outcomes: the **Familias Unidas**³⁰ program reported the incidence of sexually transmitted diseases while the **RAP**³⁶ program reported pregnancy rate. However, neither measure showed any significant effect. This finding must be interpreted in light of the appropriateness of these behavioral and biological outcome measures

for the pre-adolescent target groups. For example, the RAP³⁶ program had preadolescents with mean age of less than 11 years when most of them are not sexually active. Self-reported incidence of STDs has also been found to be substantially underreported and this may lead to false conclusions on the efficacy of the intervention.⁴⁴ It is nonetheless important to assess actual health outcomes in order to be able to make firm conclusions about the efficacy of programs; this will require longitudinal design, charting behaviors and age at sexual debut for study participants and controls. Four studies^{30,33,40,43} reported increases in condom use by adolescents, while one study³² showed significant change in condom-related attitudes, self-efficacy and behavioral intentions. These factors have been found to be positively associated with condom use.⁴⁵

Impact of Parent-focused Interventions

Generally, the parent-focused interventions appeared to show more effectiveness than the family-focused interventions across all the measures because they were more targeted. In the family interventions, parents either received limited dosage or attended joint sessions with adolescents, which may have resulted in more limited content on grounds of appropriateness.⁴⁶ For example, in the **Reaching Adolescents and Parents (RAP)**³⁶ program, parents and adolescents had one joint session. However, adolescents attended six sessions separately while parents attended only one session separately which did not teach any specific skills that they can use with their adolescents to reduce sexual risk behavior.⁴⁷ There was no significant effect on parent-child communication at 12-month follow up possibly because parents could not reinforce the message the adolescents received. The **CHAMP**³⁵ and **SHAPE**³⁹ programs that had joint sessions for both parents and adolescents did not show significant effect on adolescent reports of parent-child communication.

In the **Mother-Daughter Risk Reduction (MDRR)**³² study, there was no significant change in sexual activity at immediate post-test and 6-months follow-up between girls receiving the HIV risk reduction intervention delivered by their mothers and girls who received the same intervention delivered by female health professionals. This finding suggests that mothers were as effective as health professionals in delivering the HIV risk reduction intervention to their children. Similar parental impact was observed in the **Managing the Pressures before Marriage (MPM)**³¹ program, a school-based abstinence-only curriculum for middle-school students in which the intervention group (MPM-enhanced) received an enhanced curriculum with five homework assignments to be completed by the students and their parents. No significant difference existed between the MPM-only group that received only the classroom curriculum and the MPM-enhanced group among those who had recent sexual intercourse (in the past three months). However, within the MPM-enhanced group, the percentage of adolescents who had had recent sexual intercourse was significantly lower for those who did any of the homework assignments compared to those who did none of the homework. This was expected because the intervention required both parents and adolescents to complete the homework assignments together, thereby providing a means for them to engage with each other in sexual communication and influence behavior.

In the **SHAPE**³⁹ program, the intervention group had parents and children attending intervention sessions together while the control group had a reduced intervention without parents attending. The intervention group showed significant increase in parents' communication with their child about sexual abuse, STI and vaginal intercourse compared with the control group. Meanwhile, there was no significant effect on adolescents' comfort in communicating with their parents about

sex-related issues suggesting that interventions targeted at parents may encourage them to be more proactive than adolescents to initiate discussions of sexual matters. The findings from the above three studies suggest parents can be a valuable resource to improve adolescent health if they are given the right information and tools to educate and engage with their children on issues relating to sexuality and sexual risk reduction.

Parent-Child Communication, Parenting Practices and Impact on Sexual Behavior Change

In studies that addressed parent-child communication and other parenting practices, intervention components were designed to be developmentally appropriate and appeared to focus on monitoring and supervision of adolescents' environment and behavior. For example, monitoring and supervision were critical for prepubescent adolescents in the **Saving Sex for Later**²⁹ program and for the delinquent youth in the **Familias Unidas**³⁰ program. In all the studies that assessed parent-child communication about sexuality and sexual risk reduction topics, parents reported significant improvements in the frequency and content of topics discussed, their comfort level and self-efficacy. This might have resulted from parents' increased awareness of adolescent sexual risk behaviors and the concern they naturally have to help their children avoid such risks. Four studies¹² showed significant changes in parents' reports of positive reinforcement, parental monitoring, involvement, discipline or parental influence. The **Families Matter! Program**¹² and the **Familias Unidas**³⁰ program showed significant effect on positive reinforcement, that is, the extent to which parents used positive affirmations and rewards to reinforce good behavior. The **Saving Sex for Later**²⁹ program also showed significant effect on parents' perceived influence over whether their children stayed sexually abstinent or engaged in sexual risk

behaviors while the **Families Matter! Program**¹² showed significant effect in parental monitoring.

Compared to the control group, mothers in the **SAAF**⁴³ program reported higher levels of intervention-targeted parenting behaviors. Adolescents' reports showed significant improvements in parent-child relationship, positive reinforcement and parental monitoring in the **Families Matter! Program**.¹² The adolescents also reported significant increase in family support and family rules in the **Saving Sex for Later**²⁹ program.

Findings from the above studies indicate evidence of new skills developed by parents in monitoring child behavior, building strong relationships and improving parent-child communication about sexual topics. The opinions of the adolescents may suggest true change in their parents' protective factors and thus indicate that these factors may be easily amenable to change by appropriate intervention. However, the **Saving Sex for Later**²⁹ and the **Familias Unidas**³⁰ programs did not show significant difference in parental monitoring. This might have occurred due to possible problem behavior associated with the adolescent participants in the **Familias Unidas**³⁰ program that targeted delinquent adolescents aged 12 to 17 years. The **Saving Sex for Later**²⁹ study used different measures to assess parental monitoring at baseline and follow-up thus making it difficult to accurately assess change scores.

Interventions that showed significant improvements in parenting practices also showed significant effects on adolescent sexual behaviors suggesting possible causal relationships or strong association between parenting practices and adolescent sexual behavior. One study

worthy of mention is the **SAAF**⁴³ program. The study reported on a hypothesized relationship between parenting practices, mediational constructs (youth self pride and sexual norms) and adolescent sexual behavior. It found that an increase in parenting practices was associated with an increase in adolescents' self-pride. Self-pride was in turn associated with an increase in adolescents' protective sexual norms, which in turn, reduced sexual risk behaviors. The explanation of these findings is grounded in social and behavioral theories from which selected constructs have been used to design the interventions reviewed in these studies. Prominent among these theories are problem behavior theory,⁴⁸ social learning theory⁴⁹, social cognitive theory⁵⁰ and theory of reasoned action⁵¹.

The problem behavior theory⁴⁸ states that problem behavior, including adolescent sexual risk behavior is a result of adolescent-environment interaction reflecting the influences of adolescent risk and protective factors. Parenting intervention will therefore seek to provide strategies for parents to monitor and control the social environment of the child such as media and peer pressures to reduce exposure to risky sexual situations. Program may also enhance parental support to increase the likelihood of the child engaging in positive psychosocial behavior. Social learning theory⁴⁹ focuses on reinforcement and observational learning as key concepts that influence behavior change and maintenance. Parenting intervention applying this theory will tend to improve parenting skills in building strong parent-child relationship and providing feedback and positive reinforcement for behavioral attempts or actual performance of a desired behavior, and may emphasize the need for parents to act as role models for their children.

The social cognitive theory⁵⁰ posits that individual's perceived self-efficacy influences how they develop and maintain a specific behavior. Parenting intervention, in this case, is likely to improve the self-efficacy of parents in communicating with their children about sensitive sexual health topics and they, in turn, can help their children improve their competence to overcome perceived barriers to communication and action such as refusing sex, negotiating safer sex and avoiding situations where sexual intercourse is likely.

The theory of reasoned action⁵¹, on the other hand, assumes that the best predictor of behavior is *behavior intention*, which in turn is a function of attitude toward the behavior and perceived social norms. Parenting intervention applying this principle will tend to change attitudes, alter social norms of parents to be open to discussing sexuality, and convey their own values and expectations relating to sexual behavior to their children with the hope that their children will be motivated to meet those expectations.

Abstinence-only vs. Comprehensive Sexuality Education

There has been controversy surrounding the appropriateness and efficacy of abstinence-only and comprehensive-sex education programs. While abstinence may be the only acceptable approach to reducing sexual risk behaviors in some cultural settings, Santelli et al have criticized abstinence-only programs for their unethical disposition and violation of basic human rights by withholding or limiting access to health information and services or disparaging safer sex programs as ineffective in order to influence adolescent health choices.⁵² Comprehensive sex education, on the other hand, has been advocated because of the realities of the growing risks of unwanted pregnancies^{53,54}, HIV/AIDS⁵⁵ and STD⁵⁶ infections.

In this review, five studies^{29,31,34-36} were identified to be abstinence-focused interventions that targeted parent-child communication about sexuality, improving adolescents' self-efficacy to resist sexual pressures and delay initiation of sexual intercourse. Some of these programs also attempted to clarify parental values and increase parental effectiveness in addressing sexual abstinence and reducing situations of sexual possibility, and did not provide information about ways to have safer sex such as the use of condoms or contraceptives. However, results were inconsistent across studies. Three studies - **Saving Sex for Later**²⁹, **Managing the Pressures before Marriage**³¹ and **CHAMP**³⁵ reported significant reduction in intimate behaviors, recent sexual activity and intention to have sex, and sexual possibility situations respectively. These positive effects are most likely due to the influence of parents as these programs focused on parents or included parent component to improve parenting practices, communication and their self-efficacy to encourage sexual abstinence. The other two studies^{34,36} - **Facts and Feelings**³⁴ and **Reaching Adolescent and Parents (RAP)**³⁶ did not show improvement.

The **Facts and Feelings**³⁴ intervention did not show significant effects in adolescents' reports of engaging in sexual behavior and intention to have sex before marriage or during the upcoming year at the 12-month follow up. The intervention was delivered by videotapes and printed material mailed to participants. There was therefore no means of ascertaining whether the videos were actually watched. The **RAP** program³⁸ focused on adolescents' pregnancy rate as the only outcome of interest and did not report other sexual behaviors. The **RAP** program³⁶ targeted adolescents of 9 to 14 years with mean age of 10.6 years.

Several studies targeting preadolescents have mostly reported very low incidence of sexual activity in this age group⁵⁷ and therefore it is likely that a measure of pregnancy rate at a 12-

month follow up survey will not show any significant effect. Nonetheless, abstinence programs can be effective if parenting interventions address the context of adolescent sexual activity, beliefs about the consequences of engaging in early sex, and self-efficacy to refuse sex or avoid behavioral risks or situations that present sexual opportunities.

Similarly, mixed results were observed for interventions that provided comprehensive sexuality education, promoting sexual abstinence for those who were not sexually active and encouraging the use of condoms for sexually active adolescents. For example, the **Keepin' It R.E.A.L.**³³ and **REAL Men**⁴⁰ programs did not demonstrate significant effects on sexual abstinence rate and intimate behaviors but increases in condom use were reported among adolescents. It is likely that the result was due to adolescents in the target group being much older (12 to 14 years old) and potentially already exposed to sexual activity, rendering the abstinence message irrelevant to them. In the abstinence-only programs that showed significant improvements, the adolescent groups were young and mostly not sexually active. The **Saving Sex for Later**²⁹ program targeted fifth and sixth graders (97% being 10-12 years old), the **CHAMP**³⁵ targeted 9 to 11 year olds, and the **MPM** program³¹ targeted eighth graders with 6% of them being sexually active.

This preadolescence period appears to be critical as research shows it is easier to shape and prevent risky behaviors before their onset than to change established behavioral patterns,⁵ including sexual risk behaviors. Additionally, Miller et al demonstrated that parent-adolescent discussions about sex are most effective in reducing sexual risk behavior when such discussions occur before the first sexual encounter.⁵⁸

Multi-Behavior Programming

Two studies reported on substance use and sexual risk taking. In one study, **Familias Unidas**,³⁰ the mean number of days that youth in the intervention group engaged in sex without a condom under the influence of alcohol and/or drugs decreased significantly, while it increased for those in the control group. In the second study, **MPM** program³¹, adolescents in the intervention group had significantly greater self-efficacy than controls to refuse or avoid substance use and sexual behavior. Although in this study, there was no significant difference between the intervention and control in adolescents' belief that substance use increased sexual risk taking, the finding recognizes that many adolescent health problems and problem behaviors are interrelated. This is supported by Forehand's study to examine the association of risk and adaptive behaviors including alcohol consumption with precursors of sexual behavior. The study found risk and adaptive behaviors to be markers for sexual intentions.³ Leigh and Stall (1993) also found substance users to be more likely to engage in high-risk behaviors such as unprotected sex when under the influence of drugs or alcohol.⁴ Thus, studies that examine multiple health behaviors may be more effective at improving sexual behavior outcomes because they can use these behaviors to identify adolescents who may be at high risk of early sexual initiation and to enhance preventive efforts.

Implications for public health practice and policy

The findings suggest that adolescents may be more uncomfortable than their parents in communicating about sex. Studies that measured the content and frequency of communication, comfort or openness, and self-efficacy to communicate showed significant effect in parents' reports. However, three studies^{31,33,39} out of five that reported on adolescents' comfort in

communicating with their parents about sex did not show any significant effect. Moreover, several studies^{33,34,36,39-41} did not show significant effect on adolescents' reports on the content and frequency of communication about sexual topics. Only one study³⁷ out of the 17 reviewed reported adolescents' self-efficacy to communicate with their parents about sexual topics. These findings suggest that in addition to improving parents' skills and comfort in communicating with their children about sexual topics, parents need to be trained on how to develop adolescents' communication skills and improve their self-efficacy to communicate back so parents can understand their needs better. Additionally, parents can take advantage of media programs as triggers for communication or use role-plays to understand adolescents' expectations and convey their own values and expectations to their children and help their children develop the skills they need.

Only a limited number of studies were gender focused. It is important to note that differences exist between adolescent males and females in the nature and timing of puberty, and the sociocultural influences they face. It is therefore necessary to understand the specific needs of each group. Today's adolescent girls experience early puberty and may struggle to cope with these biological changes at a much younger age. This may put preadolescents at high risk of early sexual initiation and unintended pregnancies as many parents may underestimate adolescent sexual behavior at such a young age. Additionally, studies in many countries show that rates of sexual abuse are higher among girls than among boys⁵⁹ and girls are at higher risk of forced prostitution or survival sex. There is therefore the need for parents to initiate sexual communication early in the adolescent phase and provide opportunities for comprehensive

sexuality education to enhance the self-efficacy of girls to refuse sex, avoid sexual possibility situations and negotiate the use of condoms.

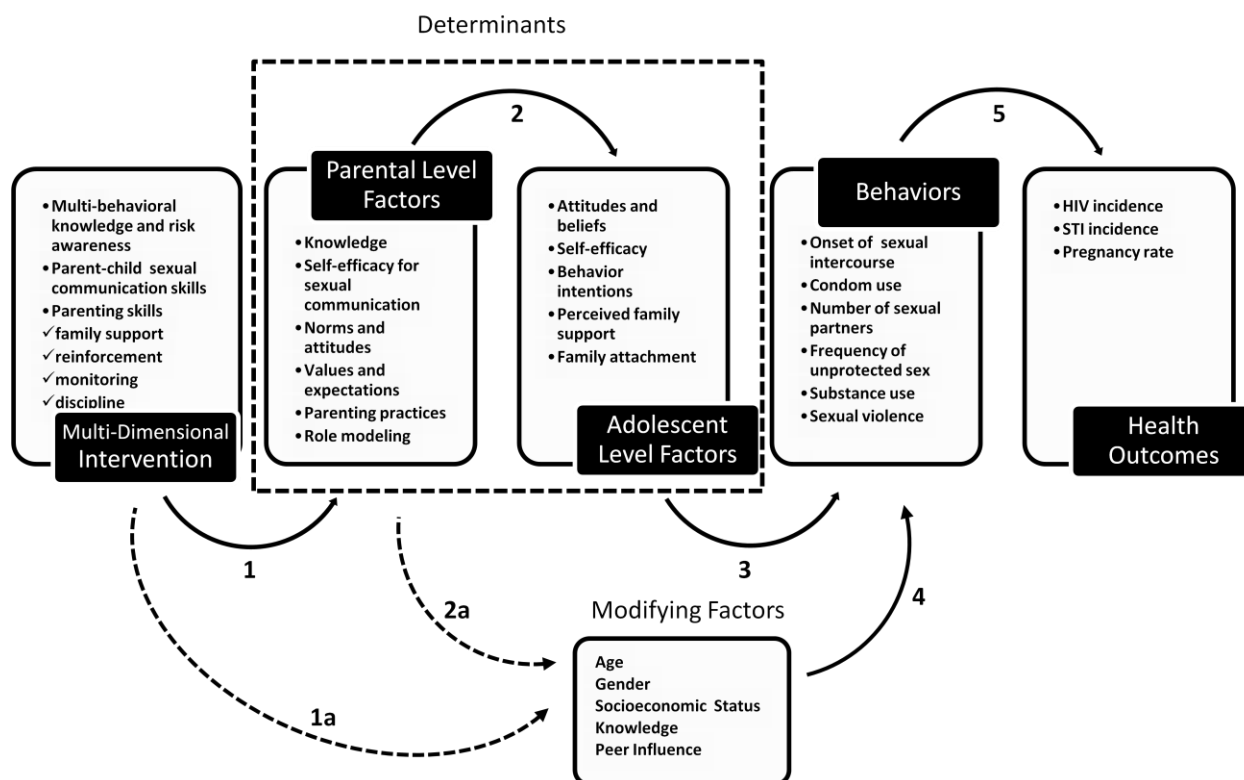
In the adolescence phase, peers become more important and this may diminish parental control or influence. This suggests that parents need interventions that develop their skills in parental support and reinforcement and to be able to monitor the adolescents' environment to reduce exposure to negative peer influences. In addition, today's adolescents have other sources of information on sex and sexuality, for example, the internet and media. Such external media may lack accurate information on sexual issues or portray young men and women, for example, in movies and advertisements in ways that promote sexual activity. This suggests that intervention that is directed at parents can be very important to provide complete and accurate HIV/AIDS and sexual health information to adolescents because adolescents prefer to listen to their parents about sexual issues¹³ and parents can help to identify ways to resist such external influences.

Many parents may underestimate the sexual behavior of their adolescents⁶⁰ because they think they are too young to know or think about sex and therefore may not discuss sexual risk reduction with them. However, three studies^{33,38,40} confirmed that adolescents aged 11-14 years old were sexually active, reporting significant increase in the use of condoms, reduction in number of partners and frequency of sex as a result of the intervention. This finding suggests that comprehensive sexuality education can be an essential component of HIV prevention intervention to effectively reduce sexual risk behavior among adolescents by providing parents the necessary knowledge and skills to address issues relating to condom use, HIV counseling and

testing, treatment of STI and to provide adolescents the skills to avoid becoming infected with HIV/STI.

Findings from the review revealed a cluster of program components from several studies that are believed to effect positive changes in adolescent sexual behaviors. Using principles from social and behavioral theories as its basis, a conceptual model is proposed (*Figure 4*) that depicts the mechanisms through which specific parenting intervention components influence adolescent sexual behavior and health outcomes. The intervention is proposed to be multi-dimensional, addressing multiple behaviors (such as sexual activity, substance use and sexual violence) that have been found to be correlated,³ parent-child sexual communication, and other parenting practices including monitoring, reinforcement, discipline and family support. This conceptual model suggests that in order to change adolescent sexual behavior, it is important to first, identify and change the determinants that influence the behavior and are themselves amenable to change as a result of the intervention. Of particular focus, are the parental level factors (for example, knowledge on subject matter, self-efficacy to communicate about sensitive topics, parenting skills, norms and attitudes) that are hypothesized to lead to changes in adolescent level factors (for example, attitudes and beliefs, self-efficacy, behavior intentions and perceived family support) and ultimately to changes in specific behavior and health outcomes.

Figure 4 Conceptual Model of Parental Influence on Adolescent Sexual Risk Behavior



Pathway 1 reflects a direct influence of the intervention on parental level factors. For example, by becoming more aware of the risks associated with problem behaviors such as sexual activity, parents may change their outcome expectations about discussing sexuality early with their adolescents that they fear may lead to early sex experimentation.²⁵ On the other hand, parents may have accurate information about sexual risk behaviors, their consequences and preventive strategies but may not have the efficacy to communicate them to their adolescents. Thus, improving parent-child communication skills will strengthen parents' beliefs in their ability to communicate about sexual topics and effectively convey their values to their adolescents. Parenting skill development may also improve parental monitoring, discipline, family cohesion, and emotional and appraisal support.

Pathway 2 suggests that the interactions that occur between parents and adolescents as parents convey their values and expectations to their adolescents cause cognitive changes in adolescents as they internalize the values of their parents and may lead to changes in their self-efficacy, attitudes and behavior intentions. Through observational learning, adolescents tend to model the behavior of their parents. This makes parental role modeling an essential element to shape adolescent behavior.

Pathway 3 represents the direct effect of adolescent level factors on behavior. The strength of family cohesion and support can be an important predictor of adolescent sexual behavior. According to Dittus & Jaccard, adolescents who perceive their parents to be supportive and are happy with their family relationships tend to engage in less sexual risk behaviors.⁶¹ In addition, youth who report supportive relationships and strong family attachment with their parents report having fewer sexual partners and report using condoms more consistently.⁶²

Pathway 4 describes the influence of modifying factors such as adolescents' age, gender, and peer norms and influence. Pathways 1a and 2a can influence these factors. In pathway 1a, intervention programs may be designed for age-specific target groups, such as abstinence programs for preadolescents aged 9-12 years old who are mostly sexually inactive or comprehensive sexuality education for adolescents aged 13-19 years old. Programs may also be gender-specific to address specific needs of the adolescents.

In pathway 2a, parents can indirectly influence sexual risk behavior by monitoring and structuring the adolescents' social environment to reduce peer influence. Whitaker and Miller⁶³

found that peer norms were associated more strongly with sexual behavior for adolescents who had not discussed sex or condoms with their parents than for those who had. Romer et al.⁶⁴ also found that greater parental communication was negatively related to multiple sexual risk behaviors and that children who reported higher levels of parental monitoring were less likely to report early sexual initiation. Pathway 5 shows the direct influence of adolescent behavior on health outcomes and suggests that sexual risk behavior can affect the incidence of HIV/STI as well as pregnancy rate.

Limitations of current study

Due to time and resource constraints, only three databases were searched. Non-English language articles were also excluded, potentially eliminating relevant studies that can support or dispute the effectiveness of current parenting interventions. A qualitative approach was adopted in gathering, analyzing and reporting evidence of parenting interventions. This review did not incorporate quantitative meta-analysis of the relevant data because of the wide range of interventions and the variability in outcome measures.

Gaps in intervention evidence

It is difficult to draw any firm conclusions about the effectiveness of parenting interventions overall or for subgroups because studies targeted populations of different age groups, gender or ethnicity and also defined and measured outcomes of interest differently. For example, for sexual activity, the **Parents Matter! Program**²⁸ measured *preadolescent sexual risk* as 'having had or anticipating having sexual intercourse in the next 12 months' for 9 to 12 year olds. However, the **Mother-Daughter Risk Reduction**³² program measured *sexual activity* as 'having had vaginal,

anal or oral sex in the past 6 months' for 11 to 14 year olds. Furthermore, while the above two studies used a single item to measure sexual activity, the **Managing the Pressures before Marriage**³¹ (MPM) program used multiple variables and items to measure a similar outcome. The MPM program measured *behavioral intention* as 'likely to have sex before finishing high school' and 'likelihood of sexual intercourse if attracted to an individual', and also measured *sexual behavior* as 'ever had sexual intercourse' and 'recent sexual intercourse (in past three months)'. Other studies such as the **Saving Sex for Later**²⁹ program assessed *behavioral risks* as proxy to sexual activity and included items such as 'had boyfriend or girlfriend', 'had kissed' and 'hung out with opposite-sex peers disapproved by a parent' to serve as indicators for sexual risk behavior. Due to the inconsistencies in the measures and outcomes reported, effectiveness of the interventions can only be reasonably assessed based on each program's content and study design characteristics. Additionally, although significant impact on adolescent sexual activity may have resulted from the interventions, results from family-focused interventions in which both parents and adolescents received the intervention did not clearly indicate to what extent the change in adolescents' sexual behaviors could be explained by their parents' involvement alone.

Adolescent sexual and reproductive health problems and problem behaviors are evidently global in nature. However, fourteen out of the 17 intervention studies reviewed were conducted in the US. There appears to be limited evidence-based parenting intervention research in other parts of the world that seeks to address sexuality and sexual risk reduction issues. For most of the interventions reviewed, the results cannot be generalized and three studies^{12,35,39} used nonrandom samples. It is possible that a parenting intervention that has been very successful within a particular context will not necessarily accrue similar benefits when implemented in a different

context without some adaptation. The intervention studies in the US were mostly targeted at minority groups (African Americans and Hispanics) with low socioeconomic status and there is not sufficient evidence that these interventions have been successful for target groups of different ethnicity or high socioeconomic status. Two adapted US-based interventions - the **Families Matter! Program**^{12,65,66} delivered in Kenya and the **CHAMPSA** program⁴² delivered in South Africa - were effective in their African contexts with parents reporting increased frequency, comfort and responsiveness in communicating about sexual topics.

The **Families Matters! Program**¹² did not use a controlled study. It is therefore difficult to establish direct causality between intervention and the outcome because it is plausible that external factors may have contributed to the positive results reported. Nonetheless, the **Families Matters! Program**¹² has shown high acceptability in seven other sub-Saharan African countries.^{67,68} The applicability of the other intervention studies to populations in other low- and middle-income regions outside of the US, for example, in Eastern Europe and Central Asia where new HIV infections among young people have increased significantly² is unknown.

Recommendation for future Research

From the findings, it is apparent that additional research is needed to increase the evidence base of the effectiveness of intervention programs. Specifically, the following recommendations are suggested for future intervention studies:

1. Outcome measures should ideally be standardized to permit easy comparison across studies. The significant differences in the measures used in the studies to assess intervention effectiveness did not allow firm conclusions to be drawn.

2. Longitudinal randomized controlled trials that allow reasonable lapse of time of at least 18 months from baseline to follow-up must be considered. This will provide clearer evidence of the long-term impact of the intervention. Behavioral change reported from immediate post-intervention to follow-up survey of less than 12 months may not be sustained. In addition, longer follow up surveys provide the opportunity to assess actual health outcomes as opposed to risk behaviors that were suitable as measures at the time of the intervention, for example, in cases where adolescent participants were prepubescent at the time of the intervention. It is therefore suggested that longitudinal surveys are conducted over the adolescent lifecycle.
3. Intervention designs that adopt a multi-faceted approach covering parent-child sexual communication and other parenting practices including parent-child relationship, monitoring, discipline, family support and reinforcement must report intervention effects of all factors in order to assess the extent to which these factors influence behavior. Only five out of the 17 studies reviewed reported intervention effects on parenting practices. However, evidence from the findings suggests that interventions that included other parenting practices in addition to parent-child communication had greater potential to reduce sexual risk behaviors than those that focused only on parent-child communication.
4. Additional research is needed to establish a stronger evidence base for the association between sexual risk taking and other risk and adaptive behaviors such as alcohol use, drug use, and violence. Only two studies^{30,31} out of 17 reviewed assessed substance abuse and its association with sexual risk taking although some other interventions contained components on similar risk behaviors. It is therefore suggested that future studies measure and report outcomes of other problem behaviors, if they are part of the

intervention components. Multi-behavior programming has the potential to uncover essential elements that can inform the effective design of parenting intervention.

5. In family-focused programs, both parents and adolescents received the intervention either separately or in joint sessions. It is important that future research critically examines the extent to which changes in adolescent sexual behavior can be attributed to the parents alone. The findings are likely to provide insight that will allow targeted intervention for parents that will significantly reduce adolescent risk behaviors.
6. Evidenced-based parenting interventions aimed at reducing sexual risk behaviors are non-existent or limited in most parts of the world. This provides an opportunity to develop new ones or adapt existing intervention studies so they can be transferred to other contexts or cultural settings.
7. The studies reviewed did not report evidence that the interventions or principles underlying them have worked for or are feasible and acceptable to different adolescent age groups. If such evidence does not exist, additional research will be needed in order to ascertain the efficacy of interventions for age groups other than those used in the study.

Conclusion

This review contributes to current evidence by recognizing the key role parents play in efforts to address adolescent health and development. It is hoped that findings from this review will stimulate thinking and action to inform public health policy and practice to address parenting needs and the development of effective and comprehensive parenting interventions that positively influence child-health outcomes. Interventions that foster positive parental attitudes, build strong parent-adolescent relationships, improve parental monitoring, and strengthen family

support as well as communication skills relating to sexuality and sexual risk reduction, have greater potential than programs that only focus on parent-child communication to delay sex initiation and change sexual risk behaviors of those who are sexually active.

Research has demonstrated that parent-child discussions about sex are most effective in reducing sexual risk behavior when such discussions occur early and prior to the onset of sexual intercourse. It is therefore essential that parenting interventions are implemented at preadolescence when adolescents can firmly internalize parental values and parents may also have stronger motivation and control to protect their preadolescents from risk.

Parenting interventions that selectively target abstinence-only education for preadolescents (9-12 years old) and do not denigrate other safer sex programs may be effective in preventing unwanted pregnancies, STI and HIV in later years. Such programs need to focus on improving parenting skills to enable parents to effectively address the context of adolescent sexual activity, beliefs about the consequences of engaging in early sex, and self-efficacy to refuse sex or avoid behavioral risks or situations that present sexual opportunities.

Parents are well placed to engage in ongoing and time-sensitive dialogue with their children about sexuality as they develop. Comprehensive sexuality education designed to promote abstinence may be systematically incorporated at the appropriate age level and capacity to meet the health needs of adolescents who may become sexually active. The abstinence and comprehensive sexuality education programs must be evaluated by longitudinal design that chart

behaviors and age at sexual debut for study groups over the adolescence phase. The proposed conceptual model (*Figure 4*) provides a useful guide for intervention design and review.

In summary, findings from the review demonstrate the potential of parents in influencing adolescent behavior choices to reduce sexual health risk and ultimately reduce disease burden and mortality both now and in the future. When parents are given appropriate knowledge and skills to communicate with their adolescents about sexuality and sexual risk reduction, they can be as effective as health professionals in delivering preventive and risk reduction messages to their adolescents. Additional research is needed to strengthen the support for parenting interventions.

Table 1 Intervention Study Characteristics

| Intervention | Intervention Year | Geographical location | Participants | Study Design | Sample Size | Setting | Sessions | Theoretical Framework | Attrition % |
|---|-------------------|-----------------------|---|--------------|---|---|---|-----------------------|---|
| Parents Matter! Program (PMP) | 2001-2004 | USA | Parents-child dyad Child: 9-12 years old | RCT | Parent I: 378 (enhanced); I: 371 (single); C: 366 Child I: 378 (enhanced); I: 371 (single); C: 366 | Community | 5 weekly sessions (4 - parent only; 1- parent and child) | SLT, PBT, TRA | At post-intervention: Enhanced 14 Single 26 Control 30 |
| Families Matter! Program (FMP) (Adaptation of Parents Matter!) | 2004-2005 | Kenya, Africa | Parent-child dyad Child: 10-12 years old | PPL | Pre: 375 Post: 321 | Community | 5 weekly sessions (4 - parent only; 1- parent and child) | NS | At 12-month follow-up 14 |
| Saving sex for later | 2003-2005 | New York, USA | Parent-child dyad Child: 5th/6th grader | RCT | Parent I: 345; C: 335 Child I: 362; C: 348 | Home | 3 audio CDs, each mailed to parents at 10 weeks interval for 6 months | SDT, TPB, DOI | NA |
| Familias Unidas | 2009-2010 | Florida, USA | Parent-child dyad Child: 12-17 years old | RCT | I: 120; C: 122 | School, Home, community (juvenile services) | 12 (8 - parent only; 4 - family visits) | EDT | I: 5.8 C: 2.5 |
| Managing the Pressures before Marriage (MPM) | 1998-1999 | New York, USA | Family-child Child: middle school | RCT | I: 190; C: 161 | School, home | 5 weekly sessions | SLT, SCT | NA |
| IMAGE Intervention with Microfinance for AIDS and Gender Equity | | South Africa | Women, young people | RCT | women I: 387; C: 363 young people I: 443; C: 427 | Community | 10 weekly sessions (Sisters for life Training) | NS | NA |
| MDRR Mother/Daughter Risk Reduction | | USA | Girls: age 11-14 years | RCT | I: 103 (MDRR) C: 62 (MDHP) C: 97 (HERR) | Community | 6 weeks for daughters (12 weeks training for mothers in content and behavioral skills they have to teach their daughters) | CBS | MDRR 23.6 MDHP 23.6 HERR 23.3 |
| Keepin' It R.E.A.L. | 1996-2001 | USA | mother-child dyad Adolescent | RCT | I: 381 C:201 | Community | 7 sessions over 14 weeks (4- together; 3-separate) | SCT, PBT | 10 |

| Intervention | Intervention Year | Geographical location | Participants | Study Design | Sample Size | Setting | Sessions | Theoretical Framework | Attrition % |
|---|-------------------|-----------------------|---|--------------|--|---------------------------|---|-----------------------|--------------------------|
| | | | age 11-14 years | | | | | | |
| Facts and Feelings | | USA | Family Adolescent age 10-14 years | RCT | 548 families 126 families - intervention + newsletter 132 families - intervention only 290 families - no intervention | home | 6 videos | NS | I: 4.7; C: 10 |
| CHAMP Collaborative HIV/AIDS Adolescent Mental Health Project | 1993-1996 | USA | Family and youth Youth (9-11 years) | NRCT | I: 201; C: 264 | Community, home | 12 weekly sessions | NS | NA |
| CHAMP SA Amaqhawe program Adaptation of CHAMP (USA) | 2001 | South Africa | Families with preadolescents (10-11 years) | RCT | 124 families I:72; C:52 Pilot study | Community, home | 10 | TTI | NA |
| RAP (Reaching Adolescents and Parents) | | USA | Adolescent: age 9-14 years | RCT | 251 adolescents C: 66 (delayed intervention) | Community, school | 8 (6-adolescent only; 1-parent only; 1- joint) | SLT | 46 at 12 month follow-up |
| Talking Parents, Healthy Teens | 2002-2005 | California, USA | Parent-child dyad Child: 11-16 years old | RCT | Parents: 535 I: 269; C: 266 Child: 627 I: 315; C: 312 | Worksite | 8 weekly sessions | | |
| Families Talking Together | 2010 | New York, USA | Parent-child dyad Child: 11-14 | RCT | Parents: 264; I: 133; C: 131 Child: 264; I: 133; C: 131 | Community (health Clinic) | 4 components Component 1: face-to-face 30 minute session between parent and interventionist Component 2: written "manual" (for parent and child) Component 3 & 4: Parents only | | |

| Intervention | Intervention Year | Geographical location | Participants | Study Design | Sample Size | Setting | Sessions | Theoretical Framework | Attrition % |
|---|-------------------|-----------------------|--|--------------|---|-----------------------|--|-----------------------|-------------|
| SHAPE (Sharing Healthy Adolescent and Parent Experiences) | | USA | Parent-child dyads | NRCT | 61 families, 122 participants | School | 6 (joint) | SLT, SCT | 3 |
| REAL Men program | 2000-2004 | USA | Father-son Sons: (13-14 years old) | RCT | 554 families I:141; C: 132 Intervention - HIV Control - nutrition & exercise | Community (boys club) | 7 (6 - father only; 1 - father-son session) | SCT | 20 |
| SAAF (Strong African American Families) | | USA | Mother-child dyads Child: 11-17 years old | RCT | 172 intervention families 150 control families | Community | 7 weekly meetings (separate concurrent sessions followed by joint parent-child session for each meeting) | SDT | Average: 5 |

RCT = randomized controlled trial; NRCT = nonrandomized trial; PPL = pre/post longitudinal study; I = intervention group; C = control group; SLT = social learning theory; PBT = problem behavior theory; SDT = social development theory; TPB = theory of planned behavior; DOI = diffusion of innovation; EDT = eco-developmental theory; SCT = social cognitive theory; CBS = cognitive behavioral skills; PBT = problem behavior theory; TTI = theory of triadic influence; NS = not stated

Table 2 Intervention Outcome Measures and Effects

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
|---|--|--|---|
| Forehand et al 2007 Parents Matter! Program (PMP) | Intervention provided parenting strategies and skills to increase effective parent-child communication parenting skills and the knowledge, skills, comfort, and confidence to communicate with their children about sexual topics. | Parents: sexual communication; parental responsiveness Adolescents: sexual communication; perception of parental responsiveness; preadolescent sexual risk | Parents and adolescents in the enhanced intervention (2 sessions) reported increased communication compared to single-session intervention or the control group; magnitude of change between pre- and immediate postintervention assessments was reportedly greater among adolescents than parents; at subsequent follow-up postintervention assessments; magnitude of change was reportedly greater among parents than adolescents. Enhanced intervention (2 sessions) showed improved parental self-efficacy (parental and adolescent reports) compared with single-session intervention or control group. Magnitude of change between preintervention and immediate postintervention assessments was greater among adolescents than parents; at subsequent follow-up visits, magnitude of change was reportedly greater among parents than adolescents. |
| Hilde Vandenhoudt 2010 Families Matter! Program (FMP)^a | To improve parenting skills and parent-child communication on sexuality and sexual risk reduction Intervention provided parenting strategies and skills to increase effective parent-child communication parenting skills and the knowledge, skills, comfort, and confidence to communicate with their children about sexual topics. | Parents: Attitude of parents regarding sexuality education; parent-child relationship; positive reinforcement; parental monitoring; sexuality education communication; sexual risk reduction communication; responsiveness Adolescents: parent-child relationship; positive reinforcement; parental monitoring; sexuality education communication; sexual risk reduction communication; | Parents: Attitudes that potentially prevent sexual communication with children decreased at postintervention. Attitudes regarding the appropriateness of talking to children about sex improved. Positive parenting practices significantly increased between pretest and posttest survey (parent-child relation, positive reinforcement, parental monitoring) parents' report of parent-child relationship did not show significant improvement Program acceptability was high (high attendance at all intervention sessions and |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
|--|--|---|--|
| | | responsiveness | <p>high satisfaction reported) Frequency of parent-child communication significantly increased. Improvements in sexual risk reduction communication and sexuality education communication increased between baseline and postintervention. Parental responsiveness significantly increased at postintervention.</p> <p>Adolescents: children reported greater use of parental positive reinforcement, higher level of parental monitoring and improvement in their relationship with parents. 17% to 38% baseline to follow-up of children reporting ever having asked their parent a question about sexuality, similar change among parents reported (14% to 50% at follow-up).</p> |
| <p>O'Donnell et al 2005 Saving sex for later</p> | <p>Parent education aimed at delaying early sexual initiation among young adolescents</p> <p>Intervention addressed themes such as changing bodies (puberty, etc), changing relationships (interest in opposite sex, peer pressure and media influences) and changing influences and pressures (why teenagers are not ready to have sex)</p> | <p>Parents: Parent-child communication about sexuality topics; self-efficacy; parental oversight (at baseline); parental monitoring (at follow-up); perceived parental influence (at follow-up)</p> <p>Adolescents: Family support; family monitoring (at baseline); family rules(at follow-up); behavioral risks</p> | <p>Parents: Parents in the intervention group were significantly more likely to score high on parental influence, communication and self-efficacy than parents in control group. Intervention parents were marginally more likely than parents in the control group to score high on monitoring.</p> <p>Adolescents: youth in the intervention group reported higher family support, more family rules and fewer behavioral risks than youth in the control group.</p> |
| <p>Prado et al (2011) Familias Unidas</p> | <p>To reduce HIV risk-behavior by improving family functioning</p> <p>Intervention focused on positive parenting, family communication, parental monitoring, and</p> | <p>Parents: Parent-adolescent communication; positive parenting; parental monitoring</p> <p>Adolescents: Unprotected sexual behavior; engaged in</p> | <p>Parents: Parent-adolescent communication significantly increased Positive parenting increased significantly. No significant difference between intervention and control group on parental monitoring.</p> |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
|--|---|--|---|
| | adolescent HIV risk behaviors. | sex while under the influence of alcohol/drugs; number of sexual partners; incidence of sexually transmitted disease | <p>Adolescents: Intervention group were 39% less likely to report inconsistent use of condoms during vaginal sex than the control group. The percentage reporting they always used condoms in the intervention group increased whereas it decreased for the control group.</p> <p>No significant difference in unprotected vaginal sex at last intercourse between intervention and control group but difference in unprotected anal sex was significant.</p> <p>Mean number of days youth in the intervention group engaged in sex without a condom under the influence of alcohol and/or drugs decreased significantly while it increased for those in the control group.</p> <p>Number of sexual partners reduced in the past 90 days at 6 months postbaseline for the intervention group compared to the control group.</p> <p>Incidence of STI - number reported is so small for any meaningful interpretation.</p> |
| <p>Susan M Blake (2001)</p> <p>Managing the Pressures before Marriage (MPM)</p> | <p>To improve parent-child communication to prevent early onset of sexual intercourse</p> <p>A school-based abstinence-only curriculum with homework assignments designed to be completed by both students and their parents in the in[tervention group</p> | <p>Adolescents: knowledge on abstinence effectiveness and pregnancy risks; sexual beliefs and attitudes supporting delay in sex initiation; self-efficacy for refusal/avoidance; behavior intentions; parent-child communication; substance use and sexual behaviors;</p> | <p>Knowledge on abstinence effectiveness and pregnancy risk was not significantly different between the intervention and control groups.</p> <p>Most sexual beliefs and attitudes were not significantly different except that the intervention group was less likely compared to the control group to expect sex in their next relationship for adolescent who have had sex before.</p> <p>The intervention group had significantly greater self-efficacy to refuse or avoid substance use and sexual behavior and was less likely to intend to have sex before completing high school.</p> <p>The intervention group reported more frequent parent-child communication about</p> |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
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| | | | <p>sex relative to the control group and significantly more frequent communication about prevention strategies and consequences of sexual intercourse. The intervention group reported having more frequent discussions about their MPM class lessons and homework assignments.</p> <p>Within the intervention group, the frequency of communications was significantly higher among students who completed any homework assignments than among those who completed none. Similar pattern found for those who completed higher number of activities and homework assignments compared to those who completed less.</p> |
| <p>Phetla 2008 IMAGE</p> | <p>Sisters for Life - the health and gender awareness component of the IMAGE intervention aimed at preventing HIV by actively challenging barriers to engaging young people about sexuality and promoting communication between adults and young people</p> | <p>Women: Communication with own or friends' children on sex/sexuality issues in past 12 months. Feel free/open to discuss sex/sexuality in the household.</p> <p>Young people: Communication with parents, guardian or other household members (not spouse or own children) on sex/sexuality issues in past 12 months. Feel free or open to discuss sex/sexuality in the household.</p> | <p>Interviews indicated women felt greater confidence to talk to children, used clearer messages instead of vague ones, and a range of communicative strategies. Women in the intervention group discussed about sexual issues with children significantly more often than women in the control group (80% vs. 49%, adjusted risk ratio 1.59 (1.31-1.93)).</p> <p>Young people confirmed that mothers and relatives altered their communication style and content after exposure to the intervention.</p> |
| <p>Dancy et al MDRR</p> | <p>Targeted daughters and aimed to reduce sexual activity, increase HIV transmission knowledge, self-efficacy and intention to refuse sex. Mothers were actively involved with the programs and had 12 weeks of training. Three interventions: MDRR - delivered by mothers on</p> | <p>Daughters: Sexual activity; self-efficacy to refuse sex</p> | <p>Adolescents who participated in MDRR reported greater intentions to refuse sex and were less likely to be sexually active than those who received only the health promotion curriculum.</p> |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
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| | <p>HIV risk reduction knowledge and skills</p> <p>HERR - delivered by health experts on HIV risk reduction</p> <p>MDHP - health promotion delivered by mothers on nutrition and exercise</p> | | |
| <p>Dilorio et al</p> <p>Keepin' It R.E.A.L.</p> | <p>A mother–adolescent HIV prevention programme. Participants received either a social cognitive theory-based intervention or a life skills program aimed at delaying sexual initiation for youth who are not sexually active and encouraging condom use for those who are sexually active</p> | <p>Parents: Comfort talking about sex; HIV knowledge</p> <p>Adolescents: Comfort talking about sex; HIV knowledge; Mother-adolescent communication about sex; self-efficacy for abstinence; sexual intercourse; outcome expectations; condom use (sexually active adolescent); sexual possibility situations, intention to have sex and use condoms; intimate sexual behaviors</p> | <p>Parents: Increase in HIV knowledge over time. Increase in mother–child communication (mothers’ reports only).</p> <p>Adolescents: Increase in HIV knowledge over time. Increase in condom use at last sex. Increase in number of intimate behaviors and decrease in abstinence rate over time. Self-efficacy and outcome expectations of abstinence both increased over time.</p> |
| <p>Miller et al</p> <p>Facts and Feelings</p> | <p>intervention to increase parent–child communication about sexual issues and to delay the likelihood of sexual initiation</p> | <p>Sexual behavior/intercourse; parent–child communication about sex, frequency of communication</p> | <p>Increase in parent–child communication about sex (child, mother and father reports).</p> <p>No significant change in sexual behavior.</p> <p>Parents: parents in the video-only and the video_newsletter groups showed a larger increase in the frequency of communication than those in the control group; half the gain in communication frequency was lost in both intervention groups by 12 mo; control-group parents experienced a gradual increase in communication.</p> <p>Adolescents: adolescents whose parents were in either intervention group showed a larger increase in the frequency of communication than those in the control group; adolescents whose parents were in the video_newsletter group</p> |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
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| | | | showed a larger increase than those in the video-only group; at 12 mo, all 3 groups returned to their baseline frequency of communication |
| <p>McBride et al 2007 CHAMP</p> | <p>Program designed based on early prevention should to equip youth to resist pressure to engage in unprotected sexual activity, and by extension prevent HIV risk exposure. Program focuses on: (a) increasing parent/caregivers' and youth comfort in discussing puberty and the development of romantic or sexual feelings; (b) reducing time spent in <i>sexual possibility situations</i>; (c) increasing parental effectiveness around supervision and monitoring of youth in general, and of sexual possibility situations, in particular; (d) clarifying family values about sexual choices; and (e) increasing parent and youth's knowledge about risks related to HIV/AIDS.</p> | <p>Adolescents: Frequency of situations of sexual possibility; relationship maintenance; parental control; average intensity of discussion (family conflict)</p> | <p>There was a significant change in parental control after the intervention regarding who makes the decisions in the family - parents were making more decisions in their families than the children. Parents in the intervention group also made more decisions than parents in the control group.</p> <p>Children reported they were significantly more likely to break off a friendship in response to peer pressure.</p> <p>The children in the intervention group reported that they were in situations of sexual possibility significantly less often than children in the control group</p> <p>There were no significant pre-post changes in the Family Conflict measure or in the frequency of situations of sexual possibility for the intervention group.</p> <p>There was no significant difference between the intervention and comparison groups on the Relationship Maintenance scale.</p> |
| <p>Bhana 2004 CHAMP SA</p> | <p>To prevent HIV infection in youth by providing resiliency in pre-adolescent and their families and strengthen community protection shield through the adapted CHAMP program.</p> | <p>Parents: AIDS transmission knowledge; AIDS myth knowledge; stigma; parental communication styles, hard to talk about; social network support</p> | <p>The intervention group showed significantly greater AIDS knowledge than the control group.</p> <p>In terms of parenting communication styles, the intervention group reportedly demonstrated a shift from passive aggressive and manipulative communication styles to more assertive styles in relation to comparison group. The intervention</p> |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
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| | | | group also showed significant improvement in their ability to engage in discussion about difficult or sensitive topics with their children in comparison to control group. Frequency of discussion also improved in the intervention group, discussion about puberty increased from 55% to 69%, whilst discussion about sex which was ranked most difficult to talk about improved from 55% to 73% post intervention. |
| Anderson et al RAP | Improve parent-child communication and delay sexual debut | Adolescents: Parent-child communication; pregnancy rate | There was an increase in parent-child communication at postintervention but not at 12 month follow-up No significant change in sexual behavior outcomes |
| Schuster et al 2008 Talking Parents, Healthy Teens | To evaluate a worksite based parenting program designed to help parents learn to address sexual health with their adolescent children. | Parents: Parent-adolescent communication about a list of sexual topics; ability to communicate with parent/adolescent about sex; openness of parent-adolescent communication about sex. Adolescents: Parent-adolescent communication about a list of sexual topics; whether parent taught adolescent how to use a condom; ability to communicate with parent/adolescent about sex; openness of parent-adolescent communication about sex. | Differences between intervention and control groups were significant for the mean number of new sexual topics that parents and adolescents reported discussing between baseline and each follow-up (P<0.001 or each); intervention parents were less likely than controls to discuss no new topics (8% v 29%, 95 confidence interval for difference 16% to 24%) and more likely to discuss seven or more new topics (38%v8%,19% to 41%) at nine months. Some differences increased after completion of the program: at one week after the program, 18% of adolescents in the intervention group and 3% in the control group (6% to 30%) said that their parents had reviewed how to use a condom since baseline (P<0.001); this grew to 29% v 5% (13% to 36%) at nine months (P<0.001). Compared with controls at nine months, parents and adolescents in the intervention group reported greater ability to communicate with each other about sex (P<0.001) and more openness in communication about sex (P<0.001). |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
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| Vincent Guilamo-Ramos 2011 Families Talking Together | To evaluate the efficacy of a parent-based intervention to prevent sexual risk behavior among Latino and African American young adults. This was delivered to mothers while waiting for their adolescent child to complete an annual physical examination at a clinic | Adolescent : Had vaginal intercourse; frequency of sex; engaged in oral sex | Relative to the control group, statistically significant reduced rates of transitioning to sexual activity and frequency of sexual intercourse were observed, with oral sex reductions nearly reaching statistical significance ($p < .054$). Specifically, sexual activity increased from 6% to 22% for young adults in the control group, although it remained at 6% among young adults in the intervention condition at the 9-month follow-up. |
| Scheinberg et al SHAPE | Parents and children attended six 2 hour sessions together where they were exposed to a curriculum aiming to delay sexual intercourse and to prevent risky sexual behaviors | Children's social decision-making scores; child engaged in social activities; child's comfort (in social activities, talking to parents/friends about sex/birth control, using birth control); child's decision making; communication, assertiveness; birth control assertiveness skills. | No significant effect on child's comfort in communicating with parents and friends about sexual-related issues and communication skills. Parents in the parent-present group significantly increased communication with their child about sexual harassment/abuse ($P < 0.05$), STIs ($P < 0.05$) and vaginal intercourse ($P < 0.05$) relative to the control group. |
| Dilorio et al REAL Men | To promote delay of sexual intercourse, condom use among those who were sexually active, and communication on sexuality between fathers (or father figures) and sons. Program consisted of lectures, discussions, role-plays, games, videotapes and homework as well as weekly goals | Fathers: discussion of sex-related topics; intent to discuss sex-related topics Sons: discussion of sex-related topics; intimate behaviors; sexual abstinence; intentions about having sexual intercourse; ever had sexual intercourse without condom, | No significant change in intimate behaviors or sexual abstinence. However, a significant decrease in lifetime sex without a condom was reported at 12-months follow-up. Fathers reported a significant increase in sex-related discussions at 6 and 12 months. However, sons reported no significant difference at all follow-up times |
| Murry et al SAAF | A family-based preventive intervention designed to deter early sexual onset and the initiation and escalation of alcohol and drug use Parents are taught strategies for communicating about sex, use of | Mothers: Involved-vigilant parenting; adaptive racial socialization; general communication; parent-adolescent communication about sex Adolescents: Youth self-pride; sexual norms; sexual risk | Significant effect in parenting practices in the intervention group compared to the control Increase in youth self-pride and sexual norms at 65 month follow-up Reduced sexual risk behavior |

| Article/Intervention | Key Program Components/Objective | Outcome Measures | Intervention Effects |
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| | <p>consistent discipline, monitoring and involvement as well as establishment of clear expectations about alcohol use and sexual risk</p> <p>Adolescents learn the importance of abiding by household rules, goal setting , and self-efficacy</p> <p>Both parent and child have joint sessions to practice communication skills and build family cohesion</p> | index | |

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