



Review article

Impact of Parent-Child Communication Interventions on Sex Behaviors and Cognitive Outcomes for Black/African-American and Hispanic/Latino Youth: A Systematic Review, 1988–2012

Madeline Y. Sutton, M.D., M.P.H.^{a,*}, Sarah M. Lasswell, M.P.H.^a, Yzette Lanier, Ph.D.^{a,b}, and Kim S. Miller, Ph.D.^a

^a Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia

^b University of Pennsylvania, School of Nursing Center for Global Women's Health and Center for Health Equity Research, Philadelphia, Pennsylvania

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A B S T R A C T

Purpose: We reviewed human immunodeficiency virus (HIV) and sexually transmitted infection (STI)- behavioral interventions implemented with disproportionately affected black/African-American and Hispanic/Latino youth and designed to improve parent-child communications about sex. We compared their effectiveness in improving sex-related behavior or cognitive outcomes.

Methods: A search of electronic databases identified peer-reviewed studies published between 1988 and 2012. Eligible studies were U.S.-based parent-child communication interventions with active parent components, experimental and quasiexperimental designs, measurement of youth sexual health outcomes, and enrollment of $\geq 50\%$ black/African-American or Hispanic/Latino youth. We conducted systematic, primary reviews of eligible papers to abstract data on study characteristics and youth outcomes.

Results: Fifteen studies evaluating 14 interventions were eligible. Although youth outcome measures and follow-up times varied, 13 of 15 studies (87%) showed at least one significantly improved youth sexual health outcome compared with controls ($p < .05$). Common components of effective interventions included joint parent and child session attendance, promotion of parent/family involvement, sexuality education for parents, developmental and/or cultural tailoring, and opportunities for parents to practice new communication skills with their youth.

Conclusions: Parent-child communication interventions that include parents of youth disproportionately affected by HIV/STIs can effectively reduce sexual risk for youth. These interventions may help reduce HIV/STI-related health disparities and improve sexual health outcomes.

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IMPLICATIONS AND
CONTRIBUTION

Parent-child communication interventions that include parents of black/African-American and Hispanic/Latino youth disproportionately affected by HIV and STIs can effectively reduce sex-related behavioral and sexual-related cognitive risks for youth. These interventions may help improve sexual health outcomes for young people and reduce HIV/STI-related health inequities.

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* Address correspondence to: Madeline Y. Sutton, M.D., M.P.H., DHAP/NCHHSTP/CDC, 1600 Clifton Rd NE MS E-45, Atlanta, GA 30333.

E-mail address: msutton@cdc.gov (M.Y. Sutton).

Of the estimated 19.7 million annual U.S. cases of incident sexually transmitted infections (STIs), including infection with human immunodeficiency virus (HIV), 9.8 million—or about half—are among young adults ages 15–24 years [1]. The cost burden of STIs for youth is high: at least \$6.5 million U.S. annually (Year 2000 data), with HIV infection accounting for more than 80% of this expenditure [2,3]. In the United States,

black/African-American and Hispanic/Latino youth, ages 13–19 years, are disproportionately affected by HIV. In 2010, they comprised 15% and 20%, respectively, of the domestic population of 13–19-year-olds, but accounted for 69% and 15%, respectively, of HIV diagnoses among all persons in this age group [4]. Young black/African-American and Hispanic/Latino men who have sex with men (MSM), are disproportionately represented among those with new HIV diagnoses [4]. Similar racial/ethnic disparity trends were observed in 2011 for the most commonly reported bacterial STIs: chlamydia infection rates among 15–19-year-old-black/African-American females and males were six and eleven times as high, respectively, as the rates among non-Hispanic white females and males in the same age group [5]. Gonorrhea infection rates among black/African-American females and males ages 15–19 years were 16 times and 30 times as high as the rates in non-Hispanic white female and male peers, respectively [5]. Chlamydia and gonorrhea infection rates among Hispanics/Latinos were twice as high as the rates for non-Hispanic whites across all age groups [5].

Recent data suggest no significant declines in sexual activity among high school age youth [6,7]. Black/African-American and Hispanic/Latino students disproportionately report higher rates of some HIV-related risk behaviors compared with their non-Hispanic white peers [6,7]. As part of broader efforts to decrease the disproportionate burden of HIV and other STIs among black/African-American and Hispanic/Latino youth, interventions that reduce risky sexual behavior, increase awareness of knowledge of HIV/STIs, and improve capacity for informed decision-making are important prevention tools. Sexual health interventions for youth may include a variety of trusted caregivers and adults, including parents, teachers, healthcare providers and extended community networks. Relative to other information sources, parents are uniquely suited to engage and educate their children about sexual health [8,9]. The family shapes the attitudes, beliefs, and norms that influence the children's behaviors as they transition from adolescence to adulthood [8,9]. In some studies, interventions that engage parents and youth in sexual health communications and that also incorporate some parental monitoring, have been associated with increased comfort discussing sex and content expertise among parents and decreased sexual risk behaviors among youth [9–12]. Many youth cite their parents as preferred sources for accurate sex-related information [13,14].

The importance of parent-child communication interventions as an additional HIV/STI prevention tool for youth of color is warranted based on the national HIV/STI and risk behavior surveillance trends [1–7] and is underscored by the unique cultural, social, and structural context for youth of color in the United States [15]. For example, the disproportionately low levels of access to health care [16], employment, and educational opportunities [17,18], and the high baseline prevalences of STIs [1], including HIV [4], among community networks of available or preferred sex partners [19], creates a more complicated context for many youth of color. Parents in communities of color have an important role to play in communicating with youth about sexual health [20–22]. A previous review of a broad, heterogeneous group of parent interventions and their impact on youth sexual health (reported from several countries and different sample populations) suggested findings were inconclusive due to a lack of rigorous evaluations [23]. However, no systematic, rigorous assessment of parent-child communication interventions that are culturally specific for youth of color in the United States has

been reported. We, therefore, reviewed HIV/STI-focused behavioral interventions implemented with youth of color and designed to improve parent-child communications about sex and assessed their effectiveness in improving sexual health outcomes (e.g., reducing youth HIV/STI risk behaviors, improving sex-related cognitive outcomes) among disproportionately affected youth in the United States. Our goals were: (1) to determine whether any studied interventions had significant impact on youth sex-related behaviors or cognitive outcomes; (2) summarize components of included interventions; and (3) review the methodologic quality of these interventions. We believe that identifying effective parent-child communication interventions that could be implemented with disproportionately affected black/African-American and Hispanic/Latino youth, may help reduce HIV/STI-related health disparities and improve sexual health outcomes for affected youth.

Methods

Search strategy

Potential studies for this review were identified through systematic search of the Prevention Research Synthesis (PRS) database [24]. The PRS database contains articles obtained from several databases including MEDLINE, AIDSLINE, EMBASE, PsycINFO, and Sociological abstracts, including articles about HIV/STI from 1988 through 2012 [24]. We reviewed items starting from the year 1988 to comprehensively search during the years when the percentages of HIV/AIDS diagnoses were steadily increasing among blacks/African-Americans while decreasing among non-Hispanic whites (U.S. national HIV surveillance data) [25]. PRS system standardized search terms were cross-referenced in three areas: (1) HIV, AIDS or STD; (2) intervention evaluation; and (3) behavioral or biological outcomes. To verify completeness of search results, we searched the PubMed database and using unique search terms (“parent-child communication,” “parent-child intervention,” “parent-based intervention,” “parent education,” “sexual health,” “HIV,” “AIDS,” “STI,” “STD,” “pregnancy prevention,” “intervention evaluation report,” “behavioral outcomes,” and “biological outcomes”). To reduce publication bias and to ensure saturation, additional sources of potential studies were reviewed from 1988 through 2012, including relevant HIV LISTSERVs (e.g., Robert Malow's HIV ListServ: <http://www.robertmalow.org/>), fact sheets on parent-child communication interventions, and the reference lists of relevant articles, book chapters, and reports. We also reviewed the reference sections of the included articles, consulted with subject matter experts for possible additional references, and queried study authors as needed for clarification.

Study selection

We reviewed titles and abstracts of search results to determine whether the content was related to parent-child communication. Relevant studies were assessed by authors using a priori inclusion criteria and standardized forms. We included studies that met the following criteria: (1) a behavioral intervention for HIV, STI, or pregnancy prevention was described; (2) the intervention targeted parents of youth, or both parents and youth; (3) the parent-level intervention component focused on increasing parent-child communication about sex and/or decreasing sexual risk; (4) the study was either a randomized controlled trial (RCT)

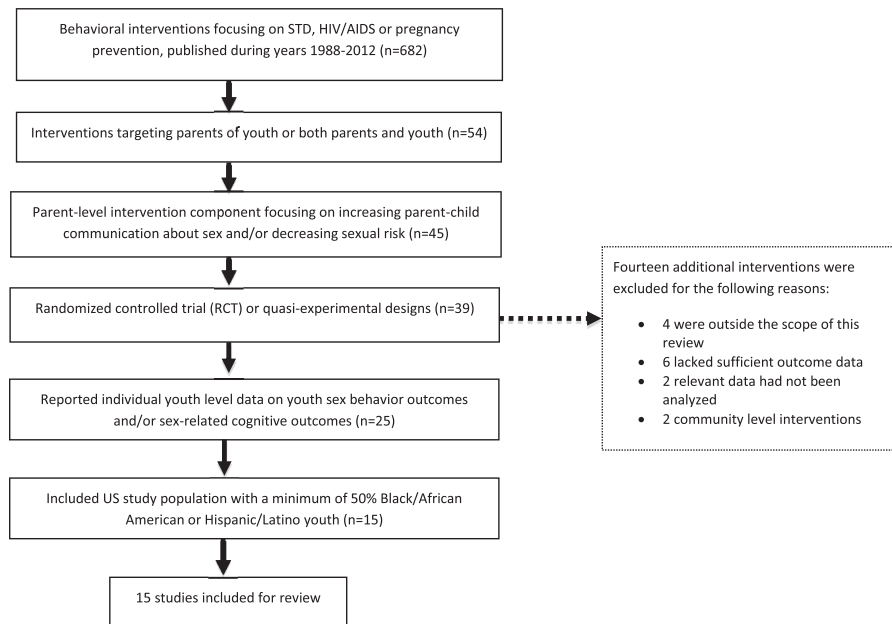


Figure 1. Selection process for systematic review of behavioral interventions to impact youth sexual behaviors and cognitive outcomes through promotion of parent-child communication (January 1988 to December 2012).

or quasiexperimental trial with a comparison arm; (5) individual youth-level outcome data on youth sex-related behaviors and sex-related cognitive outcomes were described (see below); (6) participants included U.S. study populations with a minimum of 50% black/African-American and/or Hispanic/Latino youth; and (7) studies were published in the English language. Studies were excluded if they did not meet the inclusion criteria, or did not report sufficient data for the purposes of the review.

Data abstraction and analysis

Pairs of trained Master's-, Ph.D.-, or M.D.-level coders independently abstracted information from eligible studies using standardized forms. Multiple citations from the same intervention were reviewed, and all relevant outcome data were coded and included for analysis. Coders abstracted information on study characteristics (e.g., design, dates, location, urban vs. rural locations, setting, sample size of parents and youth, retention), youth participant characteristics (e.g., age, race/ethnicity, sexual experience of youth at baseline), intervention component characteristics (e.g., unit of delivery, number and duration of sessions, cultural and/or developmental tailoring, focus and methods of intervention, joint parent-child sessions, role play opportunities) and study outcomes (e.g., reported measures, follow-up time, and statistically significant outcome data). Relevant study outcomes included youth sex-related behaviors (e.g., intimate behaviors, such as "kissing or hugging a long time," abstinence, sexual initiation, sexual activity, frequency of sex, condom use, unprotected sex, use of alcohol or drugs prior to sex, and STI infection or pregnancy) and youth sex-related cognitive outcomes (e.g., knowledge of sex- and sexual risk-related topics, intention to have sex, intention to use condoms, self-efficacy for abstinence, and self-efficacy for condom use). Outcome data were considered statistically significant at the $p < .05$ level consistent with the analyses presented in each paper. Coding

pairs convened to reconcile abstraction results. The intercoder reliability for data abstraction was .88. Resolution of any discrepancies and review of final data were conducted by a team of three authors and by a re-review of the article. Final abstracted data for each included study were entered into a Microsoft Excel spreadsheet. This spreadsheet was used to calculate descriptive summaries and compare key characteristics across reviewed interventions.

Due to the heterogeneity of the studies' measures and definitions for the youth sex-related behavior and cognitive outcomes, we were unable to reduce all study outcomes to a common statistic (such as a Cohen's d) for statistical testing, and a meta-analysis was not possible; this has been noted in previous assessments of parent interventions [10,23]. Therefore, we summarized our main results in tabular form and described in the Results section. To assess methodologic quality, we systematically recorded detailed characteristics of each intervention using a previously validated methodologic quality scoring (MQS) system [10,26]. Each intervention received MQS scores, which could range from 0 to 20. Higher scores (scores ≥ 15) were consistent with higher quality studies, middle scores (scores of 7–14) with medium quality studies, and lower scores (scores of 0–6) were consistent with lower quality studies. The data for each study were abstracted by two independent coders; the intercoder reliability was .90 across all reviewed studies.

Results

Results of the literature search are presented in Figure 1. Fifteen studies of 14 unique parent-child communication interventions met the inclusion criteria and were included for review [27–41]. One parent intervention, ImPACT, was evaluated in two separate study populations using two distinctly different study designs (with and without a youth intervention

Table 1

Summary characteristics of parent-child communication intervention studies for black/African-American and Hispanic/Latino youth, 1988–2012

First author, publication year	Intervention title	Study design	Intervention year(s)	Age range of youth (years)	% Youths reporting prior sexual experience at baseline	Sample size of parents and children (intervention arm [s], control)	Sample size and attendance of parents (intervention arm[s], control)	Retention of youth (intervention arm[s], control)	Race/ethnicity of youth %	Region of United States	Urban versus rural	Site (school, CBO, etc.)
Kennedy [27] 2000	Adolescent Prevention Marketing Initiative (PMI)—Nashville, TN data ONLY	RCT Cohort	1993–1997	12–15	50% “Sexually Active”	348-I 187-C	I = not reported C = not reported	I = 46.3% @ 30 days C = 74.3% @ 30 days	B: 77% L: 17% W: .3% O: 5%	South	Urban	Non-school based (churches, YMCA, parks)
O'Donnell [28] 2010 1.	Especially for Daughters	RCT	2005–2006	11–13 females only	Not reported at baseline	268 dyads 2. (not reported by intervention and control arms)	I-not reported ACP-not reported 3. C-not reported	Retention @ 3 mo: 222/268 girls (82.8%); 233/268 parents (86.9%)	B: 66% L: 34% 4.	Northeast	Urban	School-based
Prado [29] 2007	Familias Unidas + PATH	RCT Cohort	2001–2005	11–13	“Ever had sex” measured but not reported	One experimental; 2 controls: Fam + PATH: 91-I; ESOL + PATH: 84-C1; ESOL + HEART: 91-C2	I1 (Fam + PATH) = attendance NR I2 (ESOL + PATH) = attendance NR I3 (ESOL + HEART) = attendance NR	I1 (Fam + PATH) = 78% @ 36 mo I2 (ESOL + PATH) = 83% @ 36 mo I3 (ESOL + HEART) = 77% @ 36 mo	L: 100%	South	Urban and suburban	School-based and non-school based (residential, clinics)
Guilamo-Ramos [30] 2011 5. 6.	Families Talking Together	RCT	NR	11–14	6.4% had vaginal sex at baseline	264 dyads randomized; 7. 133-I 8. 131-C	Parent-child dyads: 9. 100% present at clinical visit for intervention; booster call follow-up completion NR	I = 93% @ 9 mo C = 96% @ 9 mo	B: 16% 10. L:85%	Northeast	Urban	Clinic setting
Stanton [31] 2000	ImPACT	RCT Cohort	1997–1998	12–16		Parent-child dyads: 120-I 117-C	Parent-child dyads: I1 (ImPACT) = attendance NA I2 (GFT) = attendance NR	Parent-child dyads: I1 = 76% @ 12 mo I2 = 74% @ 12 mo	B: 100%	East	Urban	Non-school based
Wu/Stanton [32] 2003	Focus on Kids + ImPACT	RCT	1999–2000	12–16	42% “Ever had sex;” 9% “Ever had anal sex”	Three experimental groups with total youth + families = 817-I; 323-C	I1 (FOK + ImPACT) = 258 (attendance not reported) I2 (FOK + ImPACT + boosters) = attendance NR C (FOK-only): NA	I (FOK + ImPACT-only) = 32% @ 24 mo I2 (FOK + ImPACT + boosters) = 29% @ 24 mo C (FOK-only) = 40% @ 24 mo	B: 100%	East	Urban	Non-school based

Dilirio [33] 2006	Keepin' It Real	RCT Cohort	1996–2001	11–14	9% "Ever had sexual intercourse"	Mother-daughter dyads, two interventions: LSK = 187 SCT = 194 Control = 201	LSK = 160 (attendance NR) SCT = 154 (attendance NR) CI = 156 (attendance NR)	LSK = 91% @ 24 mo SCT = 93% @ 24 mo CI = 87% @ 24 mo	B: 98% U: 2%	South	Urban	Non-school based (Boys and Girls Clubs)
Dancy [34] 2006	Mother/Daughter Risk Reduction	RCT Cohort	2002–2004	11–14	9% sexually active at baseline.	Mother-daughter dyads, one intervention, 2 controls: 103-MDRR-I 62-C1; 97-C2	I1 (MDRR) = attendance NR I2 (MDHP) = attendance NR C (HERR) = attendance NR	91% overall @ 2 mo; retention rates @ 2 mos by condition NA	B: 100%	Midwest	Urban	Non-school based (clinics, commercial settings)
Lederman [35] 2008	Parent Adolescent Relationship Education Program (PARES)	RCT Cohort	NR	11–15	Not measured	Youth participants: 90-IP/EP 80-ACP 634- controls *some parents attended with >1 child	Attendance NR.	Retention NR.	B: 26% L: 38% W: 26% O: 10%	South	Urban	School-based
Forehand [36] 2007	Parents Matter	RCT Cohort	2001–2004	9–12	<1% had initiated sexual activity at baseline	Parent-child dyads: 378-Enhanced 371-Single session 366-Control	Parent-child dyads: Enhanced = 90% attendance across 5 sessions Single session and control: NA	Retention @ 12 months: Enhanced = 77.5% Single session = 65.4% Control = 60.6%	B: 100%	South	Urban and rural	Non-school based (Church, residential, community locations)
Jorgensen [37] 1993	Project Taking Charge	RCT Cohort	1989	12–16	23% "Experienced sexual intercourse."	Youth: 52-I; Youth: 39-C	Attendance NR.	I = 100% @ 6 mo C = 100% @ 6 mo	B: 44% L: 6% W: 45% O: 5%	East/ South	Urban	School based
Anderson [38] 1999	Reaching Adolescents and Parents (RAP)	RCT Cohort	NR	9–14	Sexual activity NR; 2% reported having been pregnant/gotten someone pregnant.	Youth = 405/not reported by treatment or control condition. Parents = 70 attended with youth.	I-Parents of 62 youth N (baseline) = 405 (61.9% at 12 mo) C-not applicable	N (baseline) = 405 (61.9% at 12 mo) @12 months: 61.9% (Youth 9–14: 185-I 66-C)	B: 21% L: 46% W: 13% Mixed: 5% Asian: 6% NR: 8% Natives: 2%	West	Urban	Community centers and school settings
Dilirio [39] 2007	Real Men	RCT Cohort	2000–2004	11–14	24% "Have had sexual intercourse"	Father-son dyads: 141-I 132-C	Father attendance: I = attended 45% of sessions C = attended 44% of sessions	I = 121 (86% @ 12 mo) C = 119 (90% @ 12 mo)	B: 96% U: 3.1%	South/ West	Urban	Non-school based (Boys and Girls Clubs)
O'Donnell [40] 2005	Saving Sex for Later	RCT Cohort	2003–2005	97% ages 10–12; 3% ≥13 years	NR	Youth: 423-I; 423-C; Parents: 337-I; 337-C	I = 337 C = 337 (attendance not applicable; home intervention)	I = 362 (86% at 3 mo) C = 348 (82% @ 3 mo)	B: 64% L: 29% O: 8%	East	Urban	School-community recruiting; Residential delivery

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Table 1

Continued

First author, publication year	Intervention title	Study design	Intervention year(s)	Age range of youth (years)	% Youths reporting prior sexual experience at baseline	Sample size of parents and children (intervention arm [s], control)	Sample size and attendance of parents (intervention arm[s], control)	Retention of youth (intervention arm[s], control)	Race/ethnicity of youth %	Region of United States	Urban versus rural	Site (school, CBO, etc.)
Brody [41] 2004	Strong African-American Families (SAAF)	RCT Cohort	~1995 (IRB approval obtained)	11	NR	172-I 150-C; 165-I 145-C	I = 172 families (# of parents NR; ~65% took part in ≥5 sessions; 44% attended all 7 sessions) C = 150 families (# of parents NR; attendance NA)	I = 172 families B: 100% (# of youth NR) C = 150 families (# of youth NR) N (baseline) = 332; N = 92.1% @ 65 mo		South	Urban and rural	Non-school based

ACP = attention control program; B = black/African-American; C = control group; CBO = community-based organization; EP = experimental program; ESOL = English as a second language course; IP = interactive program; I = Intervention group; FOK = Focus on Kids; HERR = Health Expert Risk Reduction; L = Hispanic/Latino; LSK = Life Skills Program; Mo = months; MDHP = Mother-Daughter Health Promotion; MDRR = Mother-Daughter Risk Reduction; NR = not reported; O = other; PATH = Parent-Preadolescent Training for HIV Prevention; RCT = randomized clinical trial; SCT = Social Cognitive Theory; U = unspecified; W = white; YMCA = Young Men's Christian Association.

component) [31,32]; thus data from both studies were included in this review.

Overview of included studies

Results of data abstraction are presented in Table 1 (study characteristics) and Table 2 (intervention characteristics and outcomes). The 15 included studies were published between 1993 and 2011. Eight (53%) of the 15 studies were all or partially conducted in the southern region of the United States [27,29,33,35–37,39,41], an area of the country that is disproportionately burdened by STIs [1], HIV [4], and pregnancy [42] among youth. Twelve studies were conducted exclusively with urban populations [27,28,30–35,37–40], two with both urban and rural populations [36,41], and one with both urban and suburban populations [29]. Studies were implemented in a variety of settings, including schools, churches, clinics, and community organizations. Seven studies were conducted with primarily (≥95% of sample) black/African-American youth [31–34,36,39,41], one exclusively with Hispanic/Latino youth [29], and seven with a mixed population comprised of at least 50% youth of color [27,28,30,35,37,38,40]. Four interventions targeted either females [28,33,34] or males [34], but all other studies included youth of both sexes. Cultural and/or age-appropriate developmental tailoring of the intervention was evident in 11 (73%) of 15 studies in this review [27–32,34–36,40,41], based on either pre-intervention formative work with the target population of parents and youth, population-specific community advisory boards, or ethnically matched study facilitators. All 15 studies included promotion of parent/family involvement as a component (Table 3).

Youth participant ages ranged from 9 to 16 years. Four study populations were primarily pre-adolescents (<13 years of age) [36,40,41]. Study size varied widely, from fewer than 100 youth respondents [37] to over 1,000 [36]. Of the eight studies reporting the number of participants who had already initiated sexual activity at baseline [27,32–34,36,37,39], four studies reported 20% or more youth were already sexually active at study enrollment [27,31,37,39]. The study with the highest percentage of sexually active youth at baseline [39], 50%, evaluated an intervention targeted to sexually active youth. Only five publications reported the level of parent attendance at parent-targeted sessions of the interventions [30,36,38,39,41].

Overview of interventions

Intervention characteristics and outcomes are presented in Table 2. The amount of intervention content varied widely, from one in-person session [30,31] to 25 sessions [29]. Because of the heterogeneity in study designs and the resources for our review, selection and definition of outcome measures, multiple outcome measures within studies, and differing follow-up times, it was not possible to synthesize findings for a meta-analysis. However, patterns emerged related to whether content was delivered primarily to parents, to youth, or to parents and youth equally.

Primarily parent-focused interventions

All seven interventions in which content was delivered exclusively or primarily to parents resulted in significant positive

Table 2

Characteristics of parent-child communication interventions and their sex-related behavioral or cognitive study outcomes for black/African-American and Hispanic/Latino youth, 1988–2012

#	First author, intervention	Sessions	Cultural and/or developmental tailoring	Brief description of intervention	List of all reported sex-related youth behavior and cognitive outcome measures relevant to the review (significant outcomes are in bold font)	Significant results compared with control, (<i>p</i> value), follow-up time
1	Kennedy, Adolescent Prevention Marketing Initiative [27]	8 total -7 child only -1 child + parent Total time -120–180 mins	Content strategies developed based on scientific curriculum developed with African-American youth (culturally and developmentally appropriate; <i>Be Proud! Be Responsible!</i>); tailored to fit need of local target audiences. Ethnically matched facilitators were included.	Prevention marketing Initiative (PMI) workshops for youth were co-ed, included group discussion, games, condom demonstration, videos. Intervention was locally tailored for each of five U.S. sites (data shown for Nashville only, which is the only site that included a parent-child interview for homework and where parents were offered a 1-hour session). Comparison group was a wait-list control condition in which participants could attend an unevaluated workshop after the follow-up data were collected.	Youth sex behavior -frequency of sex -frequency of unprotected sex -condom use -carrying condoms Youth sex-related cognitive outcomes -HIV/AIDS prevention knowledge -intentions to use condoms -self-efficacy to avoid unsafe/unwanted sex -skills to avoid unsafe/unwanted sex	Compared with controls at 1-month follow-up, increased condom carrying (<i>p</i> = .02), increased skills to avoid unsafe/unwanted sex (<i>p</i> = .01), increased HIV/AIDS prevention knowledge (<i>p</i> = .0001).
2	O'Donnell, Especially for Daughters [28]	Four audio CDs; CDs were mailed every 6 weeks	Formative work with youth, parents and community advisory board. Content developed to be culturally based (four fictional family scripts developed: two African-American, one Latino, one newly emigrated Caribbean)	Intervention group: Audio discs contained role model stories to help parents identify “teachable moments” to talk with their children about sex behaviors, values and expectations Attention-controlled condition: four-booklet set of project-developed materials covering similar topics and also mailed at 6-week intervals like the CDs. Control: No treatment; parents were offered CDs at the end of the study	Youth sex behavior -overall behavioral risk measure (whether youths had girlfriend/boyfriend, had kissed, had held hands, had kissed and hugged a long time)	Decreased overall behavioral risks at 3-month follow-up compared with control (<i>p</i> < .05).
3	Prado, Familias Unidas + PATH [29]	25 total -15 parent only -8 parent-child family visits -2 group discussions for practice Total time -2,940 mins	Content strategies and materials were developed based on culturally appropriate and previously tested formative work with the target Hispanic population; developed to be appropriate for pre-risk youth.	Familias Unidas: Intervention content was primarily delivered to parents, with adolescents' participation in practice of new parent skills during family visits and group discussion circles. Two control conditions: ESOL + PATH combines English course with PATH (PATH: six sessions and two family visits); and ESOL + HEART, English courses plus seven group sessions for improving youth cardiovascular health.	Youth sex behavior -unprotected sex in last 90 days -youth self-report of having an STD	Post-hoc analyses: Familias Unidas + PATH participants reduced unprotected sex at last sexual intercourse (<i>p</i> < .05) compared with ESOL-PATH participants only, and borderline self-report of STD (<i>p</i> = .05) compared with both control conditions across 6-, 12-, 24- and 36-month follow-ups.

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Table 2
Continued

#	First author, intervention	Sessions	Cultural and/or developmental tailoring	Brief description of intervention	List of all reported sex-related youth behavior and cognitive outcome measures relevant to the review (significant outcomes are in bold font)	Significant results compared with control, (<i>p</i> value), follow-up time
4	Guilamo-Ramos, Families Talking Together [30]	One 30-minute session between mother and social work interventionist during clinic visit -2 booster calls @ 1 mo and 5 mo	Not specifically described, but the Families Talking Together was developed specifically for Latino and African-American young adults (reference not provided)	Four components: -face-to-face session with mother and social worker during routine clinic visit for physical exam (how to effectively use written manual) -written manual (nine modules) taught parents effective communication and parenting strategies for reducing adolescent risk behaviors -booster sessions (follow-up on homework assignments) -physician endorsement of the intervention to mother and adolescent during clinical visit	Youth sex behavior - vaginal sexual intercourse - frequency of sex in past 30 days -given/received oral sex from a member of the opposite sex	Less vaginal intercourse ($p < .05$) and less frequent sex in past 30 days ($p < .05$) at 9 months postintervention.
5	Stanton, ImPACT [31,51]	Single joint parent-child session @ 60 –90 mins (total)	Cultural appropriateness based on content strategies, look and sound, and assessments reported. Focus groups with parents and youth used to develop HIV education videos.	ImPACT: a parental monitoring and communication video and two instructor-led role-play vignettes delivered in the youth's home. Intervention: parent-child dyads watched videos, did gender-specific role plays and proper use of condom demonstrations; included discussion of monitoring, communication and HIV risk prevention. Control parent-child dyads received an attention control program on goal-setting, which included an at-home video and discussion with interventionist; no parent-child interaction activity.	Youth sex behavior -sexual intercourse ever Youth sex-related cognitive outcomes - condom use skills	Higher levels of condom-use skills compared to controls at 6 months postintervention ($p < .001$)
6	Wu/Stanton, Focus on KIDS (FOK)/ FOK + ImPACT [32,52]	nine sessions: -eight child only -one parent + child Total time -780 mins.	Culturally based content strategies and assessments described; components made in and for local target population; developmentally appropriate for younger and older children.	The ImPact intervention is described above. FOK includes games, discussions, homework assignments, and videos within groups of 5–10 youths per session. “Boosters” were delivered at 7, 10, 13, and 16 mos after the intervention and reviewed material presented in FOK. All youth received the FOK intervention. Attention control for ImPACT: 20-minute videotape about career goals, followed by a brief discussion scripted by a written text.	Youth sex behavior 6- and 12-month follow-up: - sexual intercourse (significant 6-month follow-up only) - condom use at last sex (significant 6-month follow-up only) 24-month follow-up: -engaged in sexual intercourse -engaged in anal sex -condom use during last sexual encounter -birth control at last sexual encounter - been pregnant or gotten girl pregnant Youth sex-related cognitive outcomes 24-month follow-up - self-efficacy for protective behaviors related to sex and drugs: asked partner if condom always used	6 months: Significantly increased condom use ($p = .005$) and borderline less sexual intercourse ($p = .05$) in Impact group compared with FOK only. 24-month: ImPACT group reported increase in asking whether partner always uses condoms compared with control (FOK vs. FOK + ImPACT and FOK vs. FOK + ImPACT + boosters, $p < .05$) and decrease in pregnancies (FOK vs. FOK + ImPACT; $p = .012$). Mean self efficacy values significantly higher among youth receiving the Impact intervention (FOK vs. FOK + ImPACT and FOK vs. FOK + ImPACT + boosters, $p < .05$).

7	Dilorio, Keepin' It REAL! [33,46]	seven total over 14 weeks –four mother-child –three each for mother and child separately Total time = 840 mins.	Interventions developed from existing literature of target population.	Two interventions (Social Cognitive Theory/SCT and Life Skills Program/LSK) were evaluated. SCT included mother-child dyad and individual discussions, games, role-plays, skits and demonstrations regarding HIV transmission, sex and values, and communication skills. LSK also delivered to mother-child dyads, included interactive discussions about stress reduction, community service activities, and risk behaviors. Control: 1-hr HIV prevention session for mothers and daughters (20-min videotape on HIV transmission and prevention and a discussion of risk and prevention).	Youth sex behavior –abstinence – condom use at last sex –intimate behaviors Youth sex-related cognitive outcomes –intentions for secondary abstinence –intentions to use condoms	Youth in both interventions reported greater increase in condom use at last sex at 24 months follow-up compared with control group ($p < .05$). Data for sexual behaviors not presented by intervention group; also not presented for SCT versus LSK. Detailed data not reported for 1-, 6-, 12-month follow-up.
8	Dancy, Mother/Daughter Risk Reduction (MDRR) [34,44,45]	six total for mother-daughter dyads @120 mins each Total time -720 mins	Content strategies and assessments developed to be culturally appropriate; formative work conducted with target population; ethnically matched facilitators	MDRR intervention: mothers trained to deliver HIV risk reduction curriculum. Mothers taught collective group of daughters using group discussions, games, and role playing; included behavioral practice with corrective feedback; condom demonstrations; mother/daughter homework assignments; signed abstinence agreements. Two control curricula: (1) Health Expert Risk Reduction curriculum (HIV content same, but taught by health expert instead of mother; no homework or abstinence contracts); and (2) Mother/Daughter Health Promotion curriculum (health and exercise, not specific to HIV).	Youth sex behavior – sexual activity (vaginal, anal or oral) Youth sex-related cognitive outcomes – self-efficacy to refuse sex –intentions to refuse sex –self-efficacy for condom use –condom attitude	Female youth participants in the MDRR intervention group were less likely to be sexually active ($p < .05$) and reported increased self-efficacy to refuse sex ($p < .01$) compared to non-HIV related control at 2-month follow-up. The only significant difference between the MDRR and HERR groups was a more favorable condom attitude in the HERR group at 6-month follow-up ($p < .05$).
9	Lederman, Parent Adolescent Relationship Education Program (PARES) [35,47,48]	seven total: –four @ 150 mins (with parents and children separate for first half and together for second half) –final three are joint boosters @ 150 mins each Total time -1,050 mins	Formative work with parents/youth and existing literature were considered as intervention was developed.	The PARE curriculum (includes activities to personalize information about sexuality and reproduction and provides training in problem-solving, decision-making and assertive communication skills to prevent HIV, STDs, and teen pregnancy) delivered one of two ways: (1) Experimental or Interactive Program (EP/IP) with role-play, practice exercises, and guided parent-child discussions, and (2) The Attention Control Program (ACP), same content delivered in a traditional didactic format. A nonparticipant control group formed the third comparison group.	Youth sex-related cognitive outcomes 3–6 months postintervention follow-up (1 year post baseline): – intentions to postpone sex – sexual risk score (perceived consequences of sex, attitudes toward risk behavior, and perceived parental disapproval) 24-month follow-up (report of comparison of two delivery methods only, not comparison with nonparticipant control): – knowledge about transmission of and protection against pregnancy and HIV/AIDS – self-efficacy for resisting pressure to have sex –self-efficacy for pregnancy prevention	3- to 6-month follow-up: EP/IP group improved on total sexual health risk scores compared with other two groups ($p < .05$); EP/IP group increased intentions to postpone sex compared with only nonparticipant control group ($p < .01$). 24-month follow-up: Increased knowledge about pregnancy, HIV/AIDS for EP/IP group compared with ACP group ($p < .05$) and increased self-efficacy for resisting pressure to have sex ($p < .05$) for EP/IP group compared with ACP group @ 24-months

(continued on next page)

Table 2
Continued

#	First author, intervention	Sessions	Cultural and/or developmental tailoring	Brief description of intervention	List of all reported sex-related youth behavior and cognitive outcome measures relevant to the review (significant outcomes are in bold font)	Significant results compared with control, (<i>p</i> value), follow-up time
10	Forehand, Parents Matter! [36]	five total (enhanced group) @ 150 mins each -four parents only -one parent + child Total time -750 mins total	Culturally based content strategies and assessments; ethnically matched facilitators; developed specifically for pre-risk, pre-adolescent aged youth.	Parents Matter! focused on risk awareness, parenting practices and effective parent-child sexual communications; discussions, role-playing, group exercises, practicing skills, and homework. Youth practiced communication with parents in final session. Control 1: Single session sex risk reduction content for parents (lecture format and visual aids only). Control 2: Single session for parents about general health issues.	Youth sex behavior and youth sex-related cognitive outcome measures combined in analysis and reported outcomes -sexual risk (sexual initiation, unprotected vaginal or anal sex, intentions to have sex)	Enhanced intervention group participants reported less likelihood of sexual risk at 12-month follow-up compared to single session intervention control condition (RR = .62, 95% CI = .40–.97).
11	Jorgensen, Project Taking Charge [37,53]	6-week curriculum delivered in home economics classroom during regular school year + three parent-child evening sessions; time not specified.	Extensive review of literature described; author combined previous effective approaches into one abstinence-based approach involving parents.	Seventh graders received abstinence-based education and demonstration program to help youth “take charge” of peer and parent relationships and planning for future work. Joint sessions included exercises to encourage parent-child dialogue on pre-marital abstinence and physical and sexual development. Control: Non-participants	Youth sex behaviors -sex initiation Youth sex-related cognitive outcomes -sexual attitudes and intentions -knowledge of sexuality and STDs -knowledge of complications caused by pregnancy	At post-test and 6-month follow-up, intervention group had increased knowledge of sexuality and STDs (<i>p</i> < .05). At 6-month follow-up, increase in knowledge of pregnancy complications (<i>p</i> < .05).
12	Anderson, Reaching Adolescents and Parents (RAP) [38]	eight total -six child-only -one parent-only -one parent + child (intervention time not reported)	Formative research not reported for intervention.	RAP abstinence-based intervention. Youth sessions: included activities covering self-esteem, effective communications, peer and family relationships, and puberty. Parent-child dyads watched video vignettes that demonstrated effective communication techniques and had small group discussions. Parent-only session: parents sought clarification on concepts learned. Control: Parents and youth participated in a delayed-RAP group after the main intervention was completed.	Youth sex behaviors -self-report of pregnancy or getting someone pregnant Youth sex-related cognitive outcomes -intentions to have sex	No significant effects at post-test or 12-month evaluation.
13	Dilorio, Real Men [39,43]	seven total (evening) -six fathers-only -one father + son Total time -840 mins	Not reported	Sessions included group discussions, lectures, role-plays, videotapes, games, and take-home activities. Fathers given information on communication with adolescents, general sex topics, and transmission and prevention of HIV. Role-playing opportunities were included. Control group participated in seven weekly sessions of nutrition and exercise instruction. Joint session consisted of father-son celebration and certificates.	Youth sex behavior -abstinence -condom use -intimate behaviors Youth sex-related cognitive outcomes -intentions to use condoms -intentions to have sex	6-month: Borderline significant decreased intimate behaviors and abstinence rates (<i>p</i> = .05). 12-month: Decreased proportion reported ever having sex without a condom compared with controls (<i>p</i> = .03); reduced proportion had intentions to have sex compared to controls (<i>p</i> = .04).

14 O'Donnell, Saving Sex For Later [40]	three audio CDs @ 25 mins each for total of 75 mins; CDs were mailed every 10 weeks	Formative work with youth, parents and community advisory board n. Content developed to be culturally based (three scripts developed: one black, one Hispanic, one Caribbean)	Intervention group: Audio discs contained role model stories to help parents identify "teachable moments" to talk with their children about sex behaviors, values, and expectations. Control: No treatment; parents were offered CDs at the end of the study	Youth sex behaviors -overall behavioral risk measure (whether youths had girlfriend/boyfriend, had kissed, had held hands, had kissed and hugged a long time)	Decreased overall behavioral risks at 3-month follow-up compared to control ($p < .05$).
15 Brody, Strong African-American Families [41,49,50]	seven weekly, 120-mins -seven separate parent and child trainings -seven parent-child shared Total time -840 mins	Culturally based development of intervention content strategies, including formative work, existing literature, and cultural theory.	Parent sessions: trainings included involved-vigilant parenting, racial socialization and sex communication strategies. Youth sessions: trainings included role-playing and discussions; resistance efficacy and forming future goals. Joint sessions: practicing communication skills. Control families: three leaflets via postal mail (child health and development).	Youth sex behaviors -composite sexual behavior measure (ever had sex, frequency of sex, and condom use) Youth sex-related cognitive outcomes -composite sex and sexual risk intention measure -willingness to have sex	No direct, significant associations were reported. Indirect, significant associations were identified through pathways linking identify formation, self-pride and youth sexual outcome.

changes in youth sexual behavioral and/or cognitive outcomes [28–31,36,39,40]. Five interventions delivered content only to parents [28,30,36,39,40]. Both the five-session Parents Matter! [36] and the seven-session Real Men [39,43] interventions included the target child of the parent in the final intervention session to practice skills and/or celebrate parent graduation. The Especially for Daughters [28] and Saving Sex for Later [40] interventions consisted of video compact discs demonstrating parent-child communication skills to parents. The Families Talking Together [30] intervention was delivered to mothers during a pediatric clinic visit with their child. Two additional interventions also targeted content only to parents [29,34] but included more structured parent delivery of content and skills practice with their adolescents within the intervention. Familias Unidas + Parent-Preadolescent Training for HIV Prevention (PATH) [29] included eight family visits during which interventionists observed parents practicing communication with their adolescent child, and two parent-adolescent discussion groups. The Mother/Daughter Risk Reduction (MDRR) intervention [34,44,45] differed from the other parent-child communication interventions in that it taught mothers to deliver a structured HIV risk-reduction curriculum to their daughters, which was then delivered weekly by the mothers to the collective group of daughters. Although all seven studies demonstrated significant improvements in youth sex-related behavioral and cognitive outcomes, follow-up times varied from 2 to 36 months postintervention, and outcome measures varied from intimate behaviors such as kissing other persons to youth self-reports of STIs and pregnancy (Table 2).

Combined parent-child interventions

Three interventions delivered content to parents and youth, in combinations of joint parent-child sessions with skills practice, and sessions in which parents and children were separated and received different content [33,35,41]. Keepin' It Real [33,46] and Parent Adolescent Relationship Education Program (PARE) [35,47,48] resulted in statistically significant improved youth outcomes, but Strong African-American Families (SAAF) [41,49,50] did not (Table 2). A fourth intervention, ImpACT [31,51], was delivered in a single joint parent-child session. When delivered without the youth-focused component, ImpACT increased a sex-related cognitive measure (youth knowledge about how and when to use condoms), but did not affect youth sexual behavior. In contrast, when paired with a six-session intervention for youth, Focus on Kids (FOK) [32,52], youth who received both the joint parent-child session ImpACT intervention in addition to FOK had significant reductions in sexual risk behavior and improvements in sex-related cognitive outcomes up to 24 months later, compared with youth who received only the FOK intervention. Although most of the FOK content was delivered directly to youth, the study design of ImpACT + FOK [32,52] measured the effect of adding the single-session parent-child ImpACT intervention.

Primarily youth-targeted interventions

Three interventions were primarily youth-targeted: Project Taking Charge [37], Reaching Adolescents and Parents (RAP) [38], and Adolescent Prevention Marketing Initiative [27]. All were multisession curricula for youth accompanied by a parent and/or joint parent-child session(s). Project Taking Charge and

Table 3

Characteristics of parent-child communication interventions, by component (January 1988 to December 2012)

First author, Intervention	Components of parent-child communication interventions					Significantly improved youth sex-related behavior or cognitive outcome(s)
	Cultural and/or developmental tailoring	Joint parent/child session attendance	Promotion of parent/family involvement	Sexuality education for parents	Skills practice/role-play opportunities	
Kennedy, Adolescent Prevention Marketing Initiative [27]	X	X	X		X	X
O'Donnell Especially for Daughters [28]	X		X	X		X
Prado, Familias Unidas + PATH [29]	X	X	X	X	X	X
Guilamo-Ramos, Families Talking Together [30]	X		X	X		X
Stanton, ImPACT [31,51]	X	X	X		X	X
Wu/Stanton, Focus on KIDS (FOK)/FOK + ImPACT [32,52]	X	X	X		X	X
Dilorio, Keepin' It REAL! [33,46]		X	X	X	X	X
Dancy, Mother/Daughter Risk Reduction (MDRR) [34,44,45]	X	X	X	X	X	X
Lederman, Parent Adolescent Relationship Education Program (PARES) [35,47,48]	X	X	X	X	X	X
Forehand, Parents Matter! [36]	X	X	X	X	X	X
Jorgensen, Project Taking Charge [53]		X	X		X	X
Anderson, Reaching Adolescents and Parents (RAP) [38]			X		X	
Dilorio, Real Men [39,43]		X	X	X	X	X
O'Donnell, Saving Sex For Later [40]	X		X	X		X
Brody, Strong African-American Families [41,49,50]	X	X	X	X	X	

RAP [37,38] were school and community-center delivered abstinence-only programs. RAP [38] did not significantly impact any measured youth outcomes, while Project Taking Charge [37,53] improved cognitive but not behavioral outcomes. Adolescent Prevention Marketing Initiative [27] resulted in improved cognitive outcomes and significantly increased condom carrying (i.e., the number of youth who reported having a condom with them). Because these three studies [27,37,38] used a nonparticipant control condition, in which control-condition youth received no content, the impact of the parent-child communication component could not be isolated; youth outcomes may reflect primarily the impact of the youth-targeted content that made up the majority of these three interventions.

Youth sex-related behavioral and cognitive outcomes

Ten of 14 (71%) studies measuring sex behavior outcomes reported significant improvement among youth in at least one sex-related behavior/domain [27–30,32–36,39,40], and eight of 11 (73%) measuring sex-related cognitive outcomes reported significant improvement in sex-related cognitive domains [27,31,32,34–37,39] (Table 2).

Sex-related behavioral outcomes

Grouping sex behavior outcomes into the broad categories “sexual activity,” “condoms,” or “sexual health outcomes” revealed patterns related to impact on the type of outcome being measured. Of 10 studies that measured youth sexual activity (e.g., ever had sex, frequency of sex, initiation of sex, abstinence, anal sex, composite measure of vaginal/anal/oral sex) [27–34,36,39,41], three reported at least one significant improvement in self-reported sexual activity [30,32,39]. A third study [36] reported significant improvement across a composite of measures that included “sexual initiation,” “unprotected sex,” and “intention to have sex,” but did not report sexual initiation data independently.

Of the seven studies that evaluated measures related to condom use [27,29,32,33,36,39,41], six reported significantly improved outcomes. Four reported a significant positive change in condom use measured as unprotected sex at last intercourse [29], increased condom use at last intercourse [32,33], and any condom use [39]. One study [27] reported increased carrying of condoms; however, it failed to show significant impact on other condom-use measures. As noted above, another reported significant improvement in a composite measure that included unprotected sex, but did not report condom-use data independently. The single study that failed to show any significant impact on condom-use behavior [41] also reported data as a composite measure that included “ever had sex” and “frequency of sex,” and did not report data on condom use independently.

Two of three studies [29,32,38] measuring youth self-reported sexual health outcomes reported significant results; one reported decreases in incident STIs, and the other reported decreased pregnancies. Finally, two studies [28,40] which used an overall behavioral risk measure (whether youths had boyfriend/girlfriend, had kissed, held hands, hugged) reported significantly decreased overall risks at follow-up.

Sex-related cognitive outcomes

Results of three studies measuring self-efficacy were mixed: MDRR [34] resulted in increased self-efficacy for refusing sex (though not for condom use), ImPACT + FOK [32] reported increased self-efficacy in a combined measure that included sex and drug use intentions, and Adolescent Prevention Marketing Initiative [27] reported no significant changes in youth reports of self-efficacy to avoid unsafe or unwanted sex. Nine studies [27,33–39,41] measured youths' intentions regarding sexual activity and/or condom use, but only two studies [35,39] reported significant positive change in youth intention; PARE [35] reported increased intentions to postpone sex, and Real Men [39] reported reduced intentions to have sex. A third study, Parents Matter! [36], reported significant improvements in a combined

Table 4

Criteria for assessing frequency distributions of methodologic quality characteristics for reviewed studies, parent-child communication interventions' impact on sex behaviors, and cognitive outcomes for black/African-American and Hispanic/Latino youth, 1988–2012

Methodologic characteristic	Scoring options (maximum total score = 20 points)	Distribution of characteristics among included studies	
		Frequency, n (%)	Reference number
(A) Definition of youth sex behavior or sex-related cognitive outcomes	Not reported: 0	0 (0)	—
	Global: 1	0 (0)	—
	Behavior or cognitive domain-specific: 2	15 (100)	[27–41]
(B) Validity data for youth sex behavior and/or cognitive outcome scores	Not reported: 0	6 (40)	[28,30,36,39–41]
	Reported: 1	9 (60)	[27,29,31–35,37,38]
(C) Reliability data for youth sex behavior and/or cognitive outcome scores	Not reported: 0	3 (20)	[28,30,40]
	Reported: 1	12 (80)	[27,29,31–39,41]
(D) Validity/reliability data for other main variables in study	Not reported: 0	5 (33)	[28,30,36,39,40]
	Reported: 1	10 (67)	[27,29,31–38,41]
(E) Theoretical framework presented	Did not present: 0	2 (13)	[31,37]
	Presented: 1	13 (87)	[27–30,32–36,38–41]
(F) Research paradigm	Quantitative or qualitative: 1	14 (93)	[27–37,39–41]
	Mixed methods: 2	1 (7)	[38]
(G) Study design	Correlational or cross-sectional: 1	0 (0)	—
	Longitudinal: 2	15 (100)	[27–41]
(H) Sample size	Undetermined: 0	0 (0)	—
	<100: 1	1 (7)	[37]
	>100 to <300: 2	4 (27)	[29,34,39,41]
	>300: 3	10 (67)	[27,28,30–33,35,36,38,40]
(I) Sample design	Convenience/nonprobability: 0	2 (13)	[34,37]
	Random/probability but not nationally representative: 1	13 (87)	[27–33,35,36,38–41]
	Random/probability and nationally representative: 2	0 (0)	—
(J) Data analysis	Qualitative/univariate/descriptive: 1	1 (7)	[30]
	Bivariate/ANOVA: 2	4 (27)	[31,32,37,38]
	Multiple/logistic regressions: 3	5 (33)	[33–36,39]
	Multivariate: 4	5 (33)	[27–29,40,41]
(K) Appropriate inferences of causality	Inappropriate: 0	1 (7)	[40]
	Appropriate: 1	14 (93)	[27–39,41]

measure that included sexual intentions. The remaining six studies [27,33,34,37,38,41] did not detect any significant changes in subjects' intentions related to sex and/or condom use (Table 2).

All three studies measuring changes in knowledge and/or skills reported significant increases [27,32,37]. However, all delivered content directly to youth; thus, the outcomes do not necessarily reflect the impact of parent-child communication on youths' skills or knowledge.

Common intervention components and methodologic quality

Common components of effective interventions included developmental and/or cultural tailoring ($k = 11$ studies), joint parent and child session attendance ($k = 11$ studies), promotion of parent/family involvement ($k = 15$ studies), education for parents on topics of sexuality and HIV/STI ($k = 10$ studies), and opportunities for parents to practice new skills ($k = 12$ studies) (Table 3). The frequency distributions for each study's MQS score

Table 5

Methodologic quality scores for parent-child communication interventions assessing impact on sex-related behaviors and cognitive outcomes for black/African-American and Hispanic/Latino youth, 1988–2012

Intervention	A	B	C	D	E	F	G	H	I	J	K	MQS score
Adolescent Prevention Marketing Initiative [27]	2	1	1	1	1	1	2	3	1	4	1	18
Especially for Daughters [28]	2	0	0	0	1	1	2	3	1	4	1	15
Familias Unidas + PATH [29]	2	1	1	1	1	1	2	2	1	4	1	17
Families Talking Together [30]	2	0	0	0	1	1	2	3	1	1	1	12
ImPACT [31]	2	1	1	1	0	1	2	3	1	2	1	15
Focus on KIDS + ImPACT [32]	2	1	1	1	1	1	2	3	1	2	1	16
Keepin' It Real [33]	2	1	1	1	1	1	2	3	1	3	1	17
Mother/Daughter Risk Reduction (MDRR) [34]	2	1	1	1	1	1	2	2	0	3	1	15
Parent Adolescent Relationship Education Program (PARES) [35]	2	1	1	1	1	1	2	3	1	3	1	17
Parents Matter! [36]	2	0	1	0	1	1	2	3	1	3	1	15
Project Taking Charge [37]	2	1	1	1	0	1	2	1	0	2	1	12
Reaching Adolescents and Parents (RAP) [38]	2	1	1	1	1	2	2	3	1	2	1	17
Real Men [39]	2	0	1	0	1	1	2	2	1	3	1	14
Saving Sex for Later [40]	2	0	0	0	1	1	2	3	1	4	0	14
Strong African-American Families [41]	2	0	1	1	1	1	2	2	1	4	1	16

A = Definition of youth sex behavior or sex-related cognitive outcomes; B = Validity data for youth sex behavior and/or sex-related cognitive outcome scores; C = reliability data for youth sex behavior and/or sex-related cognitive outcome scores; D = validity and reliability data for other main intervention variables; E = theoretical framework presented; F = research paradigm; G = design; H = sample size; I = sample design; J = data analysis; K = appropriate inferences of causality.

components are summarized in Table 4. MQS scores for our studies ranged from 12 to 18 points; 11 of 15 (73%) studies were scored in the high-quality range, four of 15 (27%) were scored as medium-quality studies, and no studies were scored as low-quality (Table 5).

Discussion

We identified 15 studies of 14 interventions that enrolled $\geq 50\%$ black/African-American or Hispanic/Latino youth and directly engaged their parents as part of the intervention. Although there was heterogeneity among youth outcome measures and follow-up times among the various studies, 13 (87%) of 15 studies showed at least one significantly improved youth sexual health outcome compared with controls ($p < .05$) when parents were engaged in the intervention. Effective interventions had several components in common, and most studies were of medium and high quality. However, our review was limited by a lack of standardized measures for assessing youth sexual health outcomes; consensus guidelines developed by parent-child communication and youth sexual health experts would greatly facilitate future analyses and programs for persons working to measure and improve youth sexual health outcomes.

We found that interventions that primarily focused on delivering content to parents all had statistically significant results [28–30,33,34,36,39,40], such as increased condom use and decreased sexual activity, and had longer follow-up times [29,33,36] compared with studies that did not primarily focus on parents. A number of studies were able to show increases in condom use, which suggests that parent-child communication may be especially important for this area. Research has shown that parent discussions about condoms prior to sexual debut are beneficial and that condom behavior at sexual debut is an important determinant of subsequent condom use behavior; condom use at first intercourse has been associated with a 20-fold increase in rates of continued regular condom use [54]. These data suggest that future parent-child communication interventions may warrant including condom use discussions with youth before they initiate sexual intercourse as an additional effective strategy to reduce future sexual risk and improve long-term protective behaviors for sexual health.

Of the 10 studies that formally or informally assessed sexual activity at baseline, three enrolled youth ages 12–16 years [27,31,32], five enrolled ages 11–14 years [29,30,33,34,36,39], one enrolled ages 9–12 years [36], and one that reported on having been pregnant or gotten someone pregnant, enrolled ages 9–14 years [38]. Though some youth participants had already initiated sex at the time of study enrollment, four studies [30,32,36,39] were able to show significantly decreased sexual risk behaviors, including increased condom use. Research has shown that it is easier to prevent risky behaviors before onset than to change established behavioral patterns [55,56]. These findings are consistent with other studies that suggest that engaging youth in risk reduction before they become sexually active is a crucial strategy for improving sex-related cognitive outcomes and delaying onset of risky sexual behaviors [57,58]. Data show that even among sexually experienced youth 15–19 years of age, parents and teachers are valued sources of sexual health information [59]. Given that 31% of black/African-American and 15% of Hispanic/Latino male ninth graders report being sexually active prior to age 13 years, education and prevention efforts that start as early as middle school (sixth–eighth

grades) [58] and continue through high school merit consideration [59]. Also, given that $<30\%$ of middle school youth report receiving comprehensive sex education in the school setting [60], and recent data show teens report fewer parent discussions about contraception, HIV, and STIs [61,62], there is a timely opportunity to involve parents in HIV/STI and pregnancy prevention strategies. Parents are a vital resource of accurate sexual health information for middle-school age and older youth, and parent-child communication interventions that improve parents' abilities to provide this information confidently to their children are crucial.

We also found that cultural and developmental tailoring were common themes in most of the studies that had significant outcomes with youth of color. Consistent with previous literature addressing HIV prevention in black/African-American and Hispanic/Latino communities, HIV prevention strategies that include cultural approaches, such as supportive family and community networks [63–67], have an important role in decreasing racial/ethnic disparities in HIV infection consistent with domestic and global health equity goals [68,69]. One intervention consisted of a school curriculum (no mandatory parental component) and social development intervention (focused on social competence skills to manage situations in which high-risk behaviors occur) that randomized black/African-American middle school youth [70]. It described using culturally based African-American principles of unity, self-determination, and responsibility, as well as culturally based teaching methods, to strengthen family and community ties [70]. The researchers demonstrated significant effects with black/African-American male youth, including decreased recent sexual intercourse ($p = .02$) and increased condom use ($p < .05$) compared with controls after a 48-month follow-up [70]. Additionally, as young MSM of color are disproportionately represented among persons newly diagnosed with HIV infection, and parental-child discussions about sexual orientation of youth remain challenging [71], culturally tailored parent-child communication interventions for lesbian, gay, bisexual, transgender (LGBT) youth are also an important strategy for risk-reduction efforts [72]. Our review did not identify any parent-child communication interventions for LGBT youth of color. Based on national HIV incidence data [73], interventions for LGBT youth and young adults, especially young MSM of color, are a public health priority and development of parent-child communication interventions that help facilitate dialogue between parents and youth and increase protective behaviors for young MSM are warranted.

There are some limitations to our review and some of the studies included therein. First, the heterogeneity of the studies made it challenging to synthesize outcome findings. Future studies should increase efforts to standardize sexual behavior and cognitive outcomes for more comparable measures of effect among youth [74]. Second, study reporting varied; most authors did not report parental attendance, so we were unable to assess dose of intervention content received and the effect of dose on reported outcomes. Third, retention rates were low or not reported in two studies [32,35]. Efforts to standardize measures of retention may be warranted for future study comparisons. Fourth, some studies included small numbers of participants or took place in small venues, limiting the ability to generalize findings. Lastly, of the 14 interventions that met our criteria, only two enrolled $>50\%$ Hispanic/Latino youth; more studies with larger proportions of Hispanics/Latinos will be vital as the U.S.

population becomes increasingly diverse and to ensure more effective interventions are developed for Hispanic/Latino youth.

In conclusion, parent-child communication interventions that include parents of black/African-American and Hispanic/Latino youth disproportionately affected by HIV/STIs can reduce youth sex-related behavioral and cognitive risks and improve outcomes. Future interventions should consider including cultural/developmental tailoring, joint parent/child sessions, promotion of parent/family involvement, sexuality education for parents, and role-play opportunities as intervention components to possibly strengthen effectiveness and improve sexual health outcomes for youth. Such interventions may have the opportunity to help young people establish lifelong patterns of safe and healthy behaviors. The findings from this review underscore that parents can be engaged using a range of approaches to support youth of color, improve sexual health outcomes, and eventually decrease HIV/STI-related health disparities.

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