

A systematic review of parent and family-based intervention effectiveness on sexual outcomes in young people

Jennifer Downing^{1*}, Lisa Jones², Geoff Bates², Harry Sumnall² and Mark A. Bellis²

¹School of Nursing, Midwifery and Social Work, University of Manchester, Room 5.322, 5th Floor, University Place, Jean McFarlane Building, Oxford Road, Manchester, M13 9PL, UK and ²Faculty of Applied Health and Social Sciences, Centre for Public Health, Liverpool John Moores University, UK

*Correspondence to: J. Downing. E-mail: j.downing@blueyonder.co.uk

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Abstract

Limited evidence exists about the effectiveness of parent/family-based interventions for preventing poor sexual health outcomes, thus a systematic review was conducted as part of a wider review of community-based sex and relationships and alcohol education. Method guidance from the UK's National Institute for Health and Clinical Excellence was adhered to. Overall, 18 databases were searched. In total, 12 108 references were identified, of which 440 were retrieved and screened. Overall, 17 studies met the inclusion criteria. Findings showed that parent-based interventions were inconsistently effective at reducing young people's sexual risk behaviours. Parent-based interventions had greater impact on parent/child communication than family-based interventions, which showed no evidence of effectiveness. However, increasing parent/child communication showed no effect on sexual risk behaviours. Preliminary evidence suggests that effectiveness was greater in those studies aiming to affect multiple risk behaviours. However, this may be due to longer programme delivery and follow-up times; further evidence is required. Sexual health communication was sensitive to intervention. Studies addressing multiple risk behaviours may be as effective as targeted interventions at affecting sexual risk behaviours. Longitudinal controlled

studies, examining broader sexual activity outcomes, are needed in countries such as the United Kingdom to inform the evidence base, which is primarily US based, and contribute to related policies and practices.

Introduction

National, European and international data indicate that sexual behaviour is changing, with earlier sexual debut [1] particularly among girls [2], a higher proportion of concurrent partners [3], and a decrease in condom use at first sex [4]. The median age of sexual initiation varies between countries with, for example, industrialized countries such as Switzerland reporting first sex at age 18.5 years for both young men and women compared with 16.5 and 17.5 years for British men and women, respectively [2]. UK has the highest rates of sexually active young people, with almost 40% of 15-year-olds reporting sexual intercourse compared with 15–20% of 15-year-olds in all other Organization for Economic Cooperation and Development (OECD) countries [5]. Overall, the United States has the highest teenage pregnancy rates in OECD countries surveyed (approximately 45 per 1000 aged 15–19 years). However, England has the highest teenage pregnancy rate in Europe (approximately 27 per 1000 cf Netherlands; approximately 5 per 1000)

[5, 6]. Furthermore, sexually transmitted infections (STIs) (e.g. Chlamydia) continue to increase among those under 19 years in many European countries [7, 8]. Moderating factors such as social inequalities, poor family relationships and being raised in a single parent household, in addition to individual factors such as older appearance, physical maturity or problem behaviours also contribute to poor sexual health [6, 9–12].

Policy responses for young people's sexual education vary by country. For example, compulsory comprehensive school-based education is practiced in Sweden and Norway [13]. However, a 'whole-school learning approach' is implemented in Australia where sexuality education is incorporated and reflected throughout school policies and partnerships with the local community and parents [14]. In comparison, statutory sex education in the United Kingdom is restricted to the science-based curriculum [15], whereas other systems allow schools autonomy over lesson content and allow parents to withdraw their children from classes (e.g. Ireland [14]). Sexual health education aims to provide timely education to reduce behavioural risk factors and support development of personal protective factors such as self-efficacy and health literacy; the objective of which is to ensure that the recipient feels able, and is able, to make assured, informed and confident sexual decisions to mediate positive sexual behaviours [16, 17].

In accordance with a whole-school approach [18] and wider community involvement in risk prevention [19, 20] promoted by some countries [14], an element of parental involvement is sometimes included to ensure parents contribute to, and are informed about, their child's sex and relationship education. Parental contribution varies from engaging in school policy development to participation in school or community-based interventions. Furthermore, parental involvement can help to ensure that health messages conveyed to young people at home are consistent with school-based messages. These strategies aim to reinforce messages that facilitate risk prevention in children who are not yet sexually active and behaviour change in those who are [21–

23]. Limited information exists on young people's primary sexual health information sources. In the US studies, friends, teachers and mothers are most commonly reported as providers of sexual information [24]. In the United Kingdom, although young people (aged 16–19 years) report school as their primary sexual health information source [25], parents are reported to be girls' preferred information source and boy's second preference (33.3% compared with 34.4% preferring school) [25]. Similar views have been expressed by young people in other European countries [26]. Difficulty in addressing sensitive topics and limited parental communication skills have been cited as contributing factors to this disparity. However, some parental training interventions designed to improve parent's communication skills have reported positive findings [27].

The UK and US evidence supports the effectiveness of parenting skills and parent–child communication as an early prevention intervention for conduct disorder [28–31], substance use [32–34] and violent or aggressive behaviour [35]. Furthermore, parenting support has been highlighted as essential for tackling health inequalities [31], a major correlate of early sexual behaviour. Such initiatives foster health promoting behaviours by building family relationships [22], supporting child/adolescent development, increasing parent and child well-being and increasing health-related skills with the aim of preventing behaviour which can negatively impact both individual and wider public health. Evidence suggests that health behaviours are modelled on parental behaviour [36], influenced by siblings [37] and by parental rules regarding normative behaviours [38, 39]. Teenagers are often less influenced by parents and more by peers as they transit through pre-adolescence and adolescence. However, those with clearly defined rules, monitoring and an intact family unit (i.e. both natural parents) have shown decreased risk-taking behaviours [38–41]. Here, we review the evidence of effectiveness for community-based parent/family-focused interventions at addressing young people's sexual health outcomes.

Objectives

This systematic review aimed to (i) assess effectiveness of parent/family-based programmes at preventing or reducing poor sexual health outcomes, (ii) assess the effectiveness of these programmes at increasing communication about sex and relationships, (iii) compare parent versus family-based interventions, (iv) examine interventions solely aimed at affecting sexual behaviour versus those addressing multiple health behaviours (e.g. general health promotion, alcohol behaviours) and (v) provide quality assessment and methodological critique of included studies. This review was part of a wider community review, which was one of several systematic reviews developed to inform UK national guidance for alcohol and sex and relationships education for young people (aged 5–19 years) on behalf of the UK's National Institute for Health and Clinical Excellence (NICE). Our wider review examined interventions taking place in community settings including families, voluntary and community organizations, charities, faith groups, local authority services and health settings.

Method

Study selection

Systematic searches were conducted across 18 health, education, social care and economic databases and websites (Fig. 1) to identify systematic reviews, meta-analyses, randomized controlled trials (RCTs), controlled non-randomized studies (NRCTs) and controlled before and after studies (CBA). Examples of search details from the broader community review are accessible (www.nwpho.org.uk/reviews) and primary study information is available on request. Searches were conducted between August and September 2009 and were limited to the years 1990–2009. Searches identified studies examining the effectiveness of sex and relationship education delivered with a parent/family focus, either in isolation or as part of community-based sex and relationship education, alcohol education, personal social and health education (PSHE) or its equivalent. Studies were included if they were undertaken in the United Kingdom, Western

Europe, Australia, New Zealand, Canada or the United States. A total of 12 108 studies were identified overall, of which 91 were not retrieved. However, all relevant studies for parent or family-based sexual health interventions were retrieved resulting in a total of 17 studies eligible for inclusion. The target population examined was parents (biological, legal guardians or in some cases primary caregivers) and families with children aged 5–19 years. Programmes were classified as parent based if they actively targeted parents and focused the majority of the intervention on them. Family-based programmes were defined by their inclusion of both parent and child/children, with the programme primarily targeting the child/children. Primary outcomes of interest were intervention effects on sexual behaviours (e.g. sexual debut, number of sexual partners, protected sex, etc). The secondary outcome examined was communication (e.g. about sex and self-efficacy in sexual situations). Studies assessing one or both of these outcomes were included.

Data extraction

All titles and abstracts retrieved ($n = 12\,108$ as part of a larger review) were screened by one reviewer according to the inclusion/exclusion criteria. Relevant articles were retrieved and full-text screening undertaken independently by two reviewers. Disagreements were resolved through consensus and where necessary a third reviewer was consulted. Data on study design, study population, intervention details, evaluation analysis and results were extracted from the studies.

Quality assessment

Study quality was assessed according to criteria set out in the NICE Centre for Public Health Excellence Methods Manual [16]. Data were quality assessed by one reviewer and were independently checked for accuracy by a second reviewer. Studies were rated as poor (–), moderate (+) or good quality (++)

Data synthesis

The heterogeneous intervention models investigated and study outcomes reported prohibited

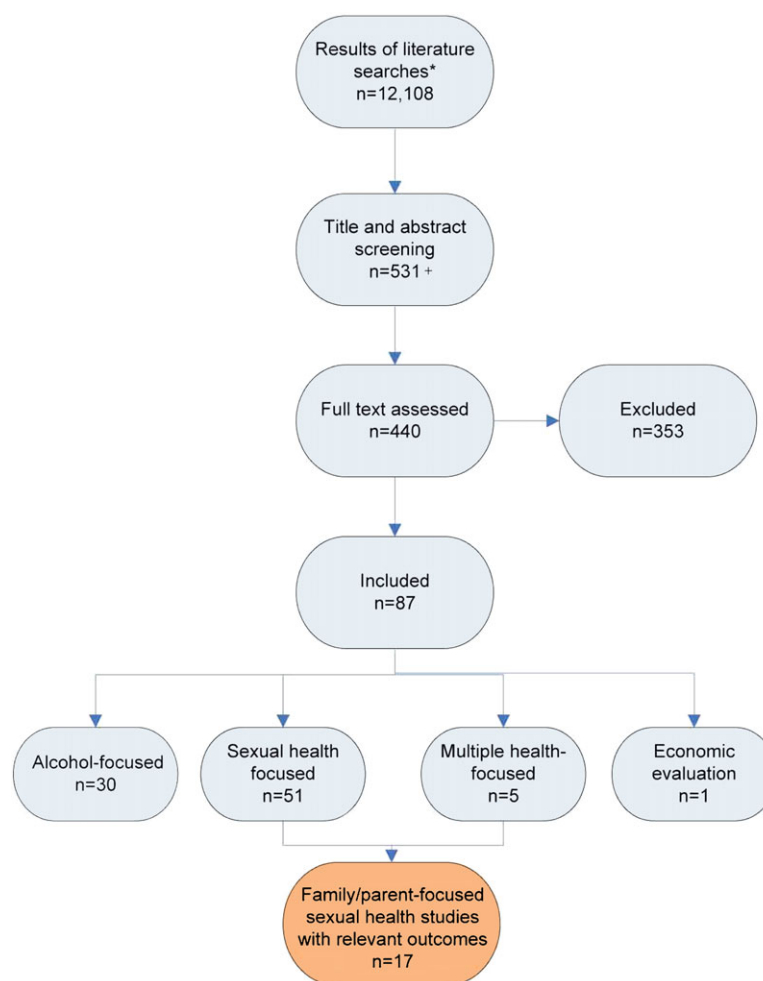


Fig. 1. Process of study selection.*Health, education, and social care databases searched: ASSIA (Applied Social Science Index and Abstracts); CINHAL (Cumulative Index of Nursing and Allied Health Literature); Database of Abstracts of Reviews of Effectiveness (DARE); The Cochrane Library; EMBASE; ERIC; British Education Index; Australian Education Index; HMIC; MEDLINE; PsycINFO; Sociological Abstracts; Social Science Citation Index; EPPI Centre databases; The Campbell Collaboration; C2-SPECTR & C2-PROT Campbell Collaboration; NHS Economic Evaluations Database (NHS EED); Econlit. +91 articles could not be retrieved.

meta-analysis. Study data for both primary and secondary outcomes are tabulated (Tables I and II) and provided in a narrative summary. Study quality assessment is also tabulated (Table III).

Expert comment

This review formed part of a wider systematic review of community-based sex and relationship and alcohol to inform the development of national guidance. Consequently, it underwent appraisal by

NICE's Programme Development Group and a national public consultation.

Results

Summary of studies identified

Overall, 12 108 references were identified from the searches. Of these, 440 articles were retrieved and screened, 353 articles did not meet inclusion criteria

Table I. Parent and family-based sexual health interventions

Study	Study sample	Theory	Setting	Provider/ programme implementation	Programme components	Comparator
Parent-focused interventions						
Dancy <i>et al.</i> [42] (RCT [cluster] +)	United States: $n = 262$ daughters, 100% African American, mean 12.4 years Recruitment: via flyers, word or mouth and face to face encounters throughout the community	CBS, BI, CCM	Community	Health experts	The MDRR: $n = 103$: aimed to reduce sexual activity, increase HIV transmission knowledge, self- efficacy and intention to refuse sex. Mothers were actively involved with the programmes and had 12 weeks of training. REAL Men programme: $n = 141$: programme consisted of lectures, discussions, role- plays, games, videotapes and homework as well as weekly goals. Fathers received seven 2-hour sessions and their sons received one (final) session.	(1) Mother/daughter health promotion curriculum (MDHP), $n = 62$ (2) HIV expert risk reduction (HERR) curriculum, where health experts rather than mothers taught the girls, $n = 97$
Dilorio <i>et al.</i> [43] (RCT [cluster] +)	United States: $n = 554$ (fathers and sons), primarily African American 13- to 14-year olds Recruitment: via boys and girls clubs	SCT	Boys and girls clubs	Not stated		Seven session nutrition and exercise programme, $n = 132$ fathers

Table I. Continued

Study	Study sample	Theory	Setting	Provider/ programme implementation	Programme components	Comparator
Forehand <i>et al.</i> [44] (RCT [individual] +)	United States: $n = 1115$, 100% African American 9- to 12-year olds Recruitment: via flyers, referrals and community events	Not stated	Community	Facilitators	Parents matter!: parent-child dyads recruited for a sexual risk reduction programme including group sessions focussing on increasing parents' communication about sexual topics. The enhanced programme ($n = 378$) was delivered over five 2.5-hour sessions using enhanced communication. The single session intervention ($n = 371$) was delivered in 2.5- hour session covering the same topics as the enhanced intervention.	Single session communication intervention/general health control, $n = 366$
C. Z. Gustafson (unpublished results) (NRCT +)	United States: $n = 58$ families, majority White 12– 16 years Recruitment: via local churches	Not stated	Community	Parish nurse	Let's talk: sex is for love: parenting workshop and in- home exercises to complete as a family ($n = 34$ families). Three-hour workshop session; 4 weekly in- home exercises.	No intervention, $n =$ 24 families

Table I. Continued

Study	Study sample	Theory	Setting	Provider/ programme implementation	Programme components	Comparator
O'Donnell <i>et al.</i> [45] (RCT [individual] +)	United States: <i>n</i> = 846 children, <i>n</i> = 674 parents, 62% Black; 29% Hispanic; 8% other fifth or sixth grade Recruitment: via schools	DI, PB	Home	CD-ROM	Saving sex for later: a CD-based intervention to improve parental communication relating to sexual behaviour (<i>n</i> = 423 children, <i>n</i> = 337 parents). The programme disseminated one CD every 10 weeks for 6 months.	No intervention, <i>n</i> = 423 children <i>n</i> = 337 parents
Prado <i>et al.</i> [46] (RCT [individual] +) ^a	United States: <i>n</i> = 266 youth, <i>n</i> = 266 parents, 100% Hispanic, mean 13.4 years Recruitment: parents via advertisement to their children in schools	ED	Schools	Trained facilitators	Familias Unidas + PATH: HIV and sexual risk reduction programme also intending to reduce substance use behaviours. Included two parent-centred modules, which also included adolescent participation in family visits and discussion circles with facilitators. The programme was conducted over 49 hours, in a 36-month period.	ESOL + PATH, <i>n</i> = 84 ESOL + HEART, <i>n</i> = 91

Table I. Continued

Study	Study sample	Theory	Setting	Provider/ programme implementation	Programme components	Comparator
Family-focused interventions						
Anderson <i>et al.</i> [47] (RCT [cluster] –)	United States: <i>n</i> = 251 adolescents (mean age 10.6) and their parents 46% Hispanic; 21% African American; 13% European American; 6% Asian American; 2% Native American; 5% other; 8% unknown Recruitment: via community meetings	SLT	Family; summer; after-school and in-school classes	Not stated	RAP reaching adolescents and parents: six adolescent-only; one adult-only and one joint sessions to improve parent–child communication and delay sexual debut	Delayed intervention, <i>n</i> = 66
Dilorio <i>et al.</i> [48] (RCT [cluster] ++)	United States: <i>n</i> = 582 adolescents (mean age 12 years) and their mothers, ethnicity = NR Recruitment: via boys and girls club	SCT; PBT	Family; boys and girls club members	Not stated	Keepin' It R.E.A.L.: a mother–adolescent HIV prevention programme. Seven 2-hour sessions over 14 weeks. Participants received either a life skills or a social cognitive theory-based intervention that aimed to delay sexual initiation and increase condom use	One-hour HIV session, <i>n</i> = 201
Lederman <i>et al.</i> [49] (RCT [individual] –)	United States: <i>n</i> = 804 parent and child dyads, 38% Hispanic; 26% African American; 25% White; 10% Other (children aged 11–15 years) Recruitment: via schools and school districts	Not stated	Not stated	Family; after-school	PARE: participants received four 2 and a half-hour sessions over a 4-week period plus three booster sessions to reduce sexual risk behaviours (<i>n</i> = 90).	Traditional intervention delivery, <i>n</i> = 714

Table I. Continued

Study	Study sample	Theory	Setting	Provider/ programme implementation	Programme components	Comparator
Lederman <i>et al.</i> [50] (RCT [individual] –)	United States: <i>n</i> = 192 families, 36% Hispanic; 29% African American; 24% White; 11% Asian or Other (adolescents aged 11–15 years) Recruitment: via school district and mail to parents	SLT; CBT	Family	Not stated	PARE: participants received four 2-and a half-hour sessions over a 4-week period plus three booster sessions to reduce sexual risk behaviours (<i>n</i> = 90)	Attention control, <i>n</i> = 102
McKay <i>et al.</i> [51]; McBride <i>et al.</i> [52] (CBA –)	United States: <i>n</i> = 564, fourth and fifth grade children and their families, ~99% African American Recruitment: via school roster	Not stated	Family	Mental health interns; community consultants; parents	CHAMP Family Programme: 12 90- min weekly meetings aimed at delaying initiation of sexual intercourse and reducing time spent in situations of sexual possibility	No intervention, <i>n</i> = 290
Miller <i>et al.</i> [53] (RCT [individual] +)	United States: <i>n</i> = 548 families, mothers and fathers were 93% and 97% White, respectively (adolescent mean age 13.9 years) Recruitment: letter of invitation	Not stated	Family; in the home	Not stated	Facts and feelings: intervention included six 15- to 20-min videos to increase parent–child communication about sexual issues and to delay the likelihood of sexual initiation with (<i>n</i> = 126 families) or without (<i>n</i> = 132 families) accompanying newsletters that provided supplementary information	No intervention, <i>n</i> = 290 families

Table I. Continued

Study	Study sample	Theory	Setting	Provider/ programme implementation	Programme components	Comparator
Scheinberg <i>et al.</i> [54] (NRCT –)	United States: $n = 122$ participants from $n = 61$ families, majority White, 5% Latino, 4% Asian Recruitment: via flyers and phone calls to community, youth and religious groups	SLT; SCT; RE	Family; classroom curriculum	Not stated	SHAPE (Sharing Healthy Adolescent and Parent Experiences): 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 behaviours	Reduced intervention, comprising curriculum sessions without parents attending, $n =$ NR
Stanton <i>et al.</i> [55] (RCT [individual] +) ^a	United States $n = 237$ dyads, 100% African American, median 13.6 years Recruitment: NR	Not stated	Family/parents	Video	ImPACT: aim was to reduce substance use, sexual risk behaviours and truancy. Parents and children viewed a 22-min educational video about AIDS, condoms and risky behaviours.	Goal for IT! An education and career training programme, n = NR

Table I. Continued

Study	Study sample	Theory	Setting	Provider/ programme implementation	Programme components	Comparator
Wu <i>et al.</i> [56] (RCT [cluster] +); Stanton <i>et al.</i> [57] (RCT [cluster] ++) ^a	United States <i>n</i> = 817 adolescents, 100% African American, 12–16 years Recruitment: from housing developments, community centres, recreation centres	SCT; PMT	Community/ family/parents	Group leaders/ instructors/ interventionists	FOK + ImPACT: risk reduction programme for alcohol, smoking, drugs and sexual behaviour. Included parent and school components delivered over eight 1.5-hour sessions (<i>n</i> = 258). Also FOK + ImPACT + Boosters (<i>n</i> = 238) with four 90-min booster sessions, role play and 20-min video sessions.	FOK only, <i>n</i> = 321
Haggerty <i>et al.</i> [58] (RCT [individual] +) ^a	United States <i>n</i> = 331 families; 51% European American; 49% African American, mean 13.8 years Recruitment: via schools using letters and phone calls	SDT	Family	Family consultants	Parents who care: participants received either a self-administered or a parent and adolescent administered substance abuse and problem behaviours prevention intervention	No intervention, <i>n</i> = 106

CBS—cognitive behavioural skills; CBT—cognitive behavioural theory; BI—Fishbein and Ajzen's behavioural intentions; CCM—Collins' community-other-mothers; SCT—social cognitive theory; DI—diffusion of innovations model; PB—theory of planned behaviour; ED—eco-developmental theory; SLT—social learning theory; PBT—problem behaviour theory; RE—relational ethics; SDT—Social Development Theory; PMT—Protection Motivation Theory; NR—not reported.

^aDenotes interventions examining multiple health behaviours including sexual behaviours.

Table II. Outcome effectiveness of parent and family-based interventions

Study/ programme	Follow-up/ attrition (%)	SRE outcome measures	Effects on SRE health and social outcomes	Effects on communication
MDRR, Dancy <i>et al.</i> [42]	1–2 weeks after daughter's training completion (91%)	Sexual activity; self- efficacy to refuse sex.	Adolescents who participated in MDRR reported greater intentions to refuse sex and were less likely to be sexually active than those in MDHP. Specifically, daughters in MDHP were 4.8 times as likely to be sexually active than those in MDRR.	NA
REAL Men programme, Dilorio <i>et al.</i> [43]	3, 6 and 12 months (80% at 12 months)	Intimate behaviours, sexual abstinence, ever SI without condom, discussion of sex-related topics (fathers/sons)	NS intimate behaviours 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.
Parents matter!, Forehand <i>et al.</i> [44]	PT, 6 and 12 months (enhanced 84% at 12 months, Single 74% at 12 months, control 70% at 12 months)	Sexual risk, sexual communication, responsiveness.	Parents matter! Enhanced versus communication/general health: NS effects. Parents matter! Single session versus communication/general health: NS effects. Parents matter! Enhanced versus single session: NS effects.	Increase in sexual communication (p & c at PT; parent only at 6 and 12 months) Increase in sexual communication (p & c at PT only) Increase in sexual communication (p & c at PT; parent only at 6 and 12 months)

Table II. *Continued*

Study/ programme	Follow-up/ attrition (%)	SRE outcome measures	Effects on SRE health and social outcomes	Effects on communication
Let's talk: sex is for love, C. Z. Gustafson (unpublished results)	PT (intervention 78%; control 97%)	Quality of communication with teen, frequency of communication, frequency of monitoring, family cohesion, shared family activities, quality of communication with mother/father, understanding personal sexual response, skills to avoid sexual pressure	NA	Increase in quality of communication with teen scale.
Saving sex for later O'Donnell <i>et al.</i> [45]	3 months (68%)	Behavioural risks (youths), self-efficacy, monitoring, communication, influence (parents) family support, family rules (youths)	Decrease in behavioural risks.	Increase in communication (parental report).
Familias Unidas + PATH Prado <i>et al.</i> [46] ^a	36 months (80%)	UPSI behaviour, STI incidence rates, UPSI at last intercourse, family functioning, positive parenting, parent-adolescent communication.	Familias Unidas + PATH versus ESOL + PATH: decrease in incidence of STIs and UPSI at last intercourse. Familias Unidas + PATH versus ESOL + HEART: decrease in incidence of STIs	Increase in parent- adolescent communication.
RAP, Anderson <i>et al.</i> [47]	PT, 12 months (54% at 12 months)	Parent-child communication, pregnancy rates	NS effects	NA
				Increase in parent- child communication at PT but not at 12 months.

Table II. Continued

Study/ programme	Follow-up/ attrition (%)	SRE outcome measures	Effects on SRE health and social outcomes	Effects on communication
Keepin' It R.E.A.L., Dilorio <i>et al.</i> [48]	24 months (90%)	Condom use at last sex; child reports of mother–child communication; mothers' reports of parent–child communication about sex.	Increase in condom use at last sex.	Increase in mother– child communication (mothers' reports only).
PARE, Lederman <i>et al.</i> [50]	3–6 months (NR)	Communication with parents and others about sexual and risk behaviours.	NA	NS effects
PARE, Lederman <i>et al.</i> [49]	2 years (NR)	Parent–child communication; parents rules about child's behaviour (parent reports)	NA	In both groups, the frequency of talking with parents about sex, risks and protection decreased over time ($P < 0.01$). However, there was a significant increase in the frequency of talking with friends in both groups ($P < 0.001$). No differences between groups concerning comfort in communication with parents.

Table II. Continued

Study/ programme	Follow-up/ attrition (%)	SRE outcome measures	Effects on SRE health and social outcomes	Effects on communication
<i>CHAMP Family Programme McKay et al. [51] and McBride et al. [52]</i>	PT (82%)	Situations of sexual possibility; family decision making, parental monitoring and supervision, family communication regarding sensitive decision making, communication comfort, family conflict.	Decrease of times in situations of sexual possibility.	Increase in family communication regarding sensitive issues, communication comfort.
Facts and Feelings, Miller <i>et al.</i> [53]	1 year (92%)	Sexual behaviour/ intercourse, parent– child communication about sex, frequency of communication	NS effects	Increase in parent– child communication about sex (child, mother and father reports).
SHAPE, Scheinberg <i>et al.</i> [54]	PT (97%)	Children's social decision-making scores, child engaged in social activities, child's comfort (in social activities, taking to parents/friends about sex/birth control, using birth control); child's decision making, communication, assertiveness, birth control assertiveness skills.	NA	NS effects on participants' 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.

Table II. *Continued*

Study/ programme	Follow-up/ attrition (%)	SRE outcome measures	Effects on SRE health and social outcomes	Effects on communication
ImPACT, Stanton <i>et al.</i> [55] ^a	2 and 6 months (88% at 2 months; 86% at 6 months)	Youth and parental reports of communication and monitoring, youth condom skills, parental condom skills.	NA	NS effects on reports of open communication.
FOK + ImPACT, Wu <i>et al.</i> [56] ^a	6 and 12 months (74% at 6 months; 71% at 12 months)	Sexual intercourse, UPSI, sexual risk behaviour, risk-taking intention, perceptions of parental monitoring, open communication, problem communication.	Decrease in sexual intercourse and unprotected sex at 6 months but not at 12-month follow-up.	Increase in perceptions of parental monitoring at 6 months but not at 12 months; increased perceptions of problem communication at 12 months.

Table II. *Continued*

Study/ programme	Follow-up/ attrition (%)	SRE outcome measures	Effects on SRE health and social outcomes	Effects on communication
FOK + ImPACT, Stanton <i>et al.</i> [57] ^a	24 months (60%)	Sexual intercourse, anal sex, pregnancy, condom use at last sex, birth control at last sex, communication about HIV/AIDS, communication with sexual partner about condom use with past partners.	FOK+ImPACT versus FOK only: Decrease in anal sex; decrease in reports of pregnancy or causing a pregnancy. FOK + ImPACT + Boosters versus FOK only: NS effects FOK + ImPACT + Boosters versus FOK + ImPACT: Increase in reports of pregnancy or causing a pregnancy Both intervention groups versus FOK only: NS effects	NS effects Increase in communication with family/other adults about HIV/AIDS; increase in communication with sexual partner about condom use with past partners. Increase in communication with family/other adults about HIV/AIDS. Increase in communication with sexual partner about condom use with past partners. NA NA
Parents who care, Haggerty <i>et al.</i> [58]	24 months (92%)	Sexual initiation.	Parents who care—self- administered: NS effects Parents who care—parent- administered: decrease in sexual initiation (African American youth only)	

SI—sexual intercourse; PT—post-test; p & c—parent and child; NA—not applicable; UPSI—unprotected sexual intercourse.

^aDenotes interventions examining multiple health behaviours including sexual behaviours.

Table III. *Quality assessment*

Study	Study design	Population eligible and defined	Allocation to intervention (or comparison)			Outcomes		Analysis	Summary	
			Allocation	Contamination	Retention	Measures/assessment	Follow-up		Unbiased	Generalizable
Forehand <i>et al.</i> [44]	RCT (I)	+	+	NR	++	++	++	++	+	+
Haggerty <i>et al.</i> [58]	RCT (I)	NR	+	NR	++	++	++	+	+	+
Lederman <i>et al.</i> [49]	RCT (I)	+	+	NR	–	+	NR	–	–	+
Lederman <i>et al.</i> [50]	RCT (I)	NR	+	NR	NR	+	++	–	–	–
Miller <i>et al.</i> [53]	RCT (I)	+	+	NR	++	++	++	+	+	–
O'Donnell <i>et al.</i> [45]	RCT (I)	++	++	++	++	++	+	+	+	+
Prado <i>et al.</i> [46]	RCT (I)	++	++	NR	NR	++	++	+	+	–
Stanton <i>et al.</i> [55]	RCT (I)	NR	++	NR	+	++	–	++	+	+
Anderson <i>et al.</i> [47]	RCT (C)	NR	+	NR	+	+	++	–	–	+
Dancy <i>et al.</i> [42]	RCT (C)	++	++	NR	++	+	+	+	+	+
DiLorio <i>et al.</i> [48]	RCT (C)	+	+	+	NR	++	++	+	++	+
Dilorio <i>et al.</i> [43]	RCT (C)	+	+	NR	++	++	++	+	+	+
Stanton <i>et al.</i> [57]	RCT (C)	–	+	NR	++	++	++	++	++	–
Wu <i>et al.</i> [56]	RCT (C)	NR	++	++	–	++	++	+	+	–
C. Z. Gustafson (unpublished results)	NRCT	NR	+	++	+	+	–	+	+	–
Scheinberg <i>et al.</i> [54]	NRCT	NR	–	NR	++	++	–	+	–	–
McKay <i>et al.</i> [51]; McBride <i>et al.</i> [52]	CBA	+	+	NR	++	+	–	–	–	+

++, good rating; +, moderate rating; –, poor rating; NR, not reported.

and 70 from the wider review were not included in this review as they did not examine parent/family-based sexual health interventions. Overall, 17 studies (Fig. 1) examining 14 programmes were eligible for inclusion in the review. In total, 11 studies examined programmes delivered to families (four of which targeted multiple health behaviours); six studies examined programmes delivered to parents (one of which targeted multiple health behaviours).

Parent studies

Six studies [42–46] examined parent-based interventions; all were conducted in the United States. Five studies [42–45] targeted adolescent sexual health (including HIV in one study) and one evaluated a multiple health behaviour intervention that included sexual health [46]. Programmes were delivered in various settings, with parents as the focus. One intervention was delivered at home to parents via Compact Disk-Read Only Memory [45], others were delivered in community-based settings using facilitators to provide training sessions to parents and their children [44] or using health experts [42]. A further study was delivered to parents using nurses associated with a close church community (C. Z. Gustafson, unpublished results) and another utilized community-based workers [43].

Family-based studies

Eleven studies [47–58] (McKay *et al.* [51] and McBride *et al.* [52] reported on the same study and follow-up times and thus are counted as one study in this review) evaluated nine family-based programmes; all were conducted in the United States. Seven studies [47–54] targeted adolescent sexual health (including HIV and STIs in some cases). All evaluated programmes focused on delaying sexual initiation and reducing sexual risk behaviours, two of these programmes [47, 53] also examined activities to improve family communication about sexual behaviours and four of them examined sexual health as part of a focus on multiple health behaviours [55–58]. The programme setting varied and included after-school sessions, family homes and community centres.

Study design and quality

Fourteen studies [42–44, 45–50, 53, 55–58] employed an RCT study design, with eight studies [44, 45, 46, 49, 50, 53, 55, 58] using individual randomization and six [42, 43, 47, 48, 56, 57] using cluster randomization (see Table III.) Two studies (C. Z. Gustafson, unpublished results) and [54] used a NRCT design and one study [51, 52] was based on a CBA design. Primary health outcomes of interest, i.e. sexual health behaviour outcomes, were examined in 12 studies [42–44, 45–48, 51–53, 56, 57, 58], while 14 studies [43–57] presented findings on communication.

Parent-based interventions

Five studies employed an RCT design [42–44, 45, 46], one used an NRCT study design (C. Z. Gustafson, unpublished results) and all were rated moderate quality. The unit of analysis did not match the unit of allocation in three studies [44, 56, 57]. No statistical adjustment for this inconsistency was reported in one study [44]; however, the remaining studies reported using intraclass correlations to adjust the findings [56, 57]. Four studies [44, 45, 56, 57] reported intent to treat (ITT) analysis. However, one study [55] did not carry out the analysis on an ITT basis and power calculations were lacking. Prado *et al.* [46] did not report on the validity of the scales used or whether allocation was adequately concealed. All relevant outcomes were reported and outcome measures were reliable in all studies.

Family-based interventions

The NRCT [54] and CBA studies [51, 52] were rated poor quality due to poorly reported outcomes. In all nine family-based RCT studies [47–50, 53, 55–58], details of randomization or the level at which the study design was concealed from participants were not reported. In all RCT studies [47–50, 53, 55–58], outcomes were rated relevant and generally, all important outcomes were assessed. Follow-up times in RCTs were quality assessed as moderate or good. Baseline comparability of groups was poorly reported or not reported in five RCTs [47, 48, 49, 50, 53] and an ITT analysis was reported to have been undertaken in two studies [48, 58] (see Table III.)

What parent-focused interventions are effective at influencing sexual risks?

Primary outcomes

Five parent-based studies [42–44, 45, 46] examined intervention effects on health and social outcomes related to sexual behaviours (for full programme, control and population details, see Tables I and II). Dancy *et al.* [42] reported no difference in the likelihood of mother/daughter risk reduction (MDRR) intervention participants being sexually active (adolescent's report of vaginal, anal or oral sex) compared with those who received HIV education via health experts (HERR). However, in comparison with a mother/daughter group receiving a nutrition and exercise health promotion intervention (MDHP), MDRR participants were less likely to be sexually active at post-intervention ($P < 0.05$). The REAL Men Programme [43] showed no effects at 6- or 12-month follow-up on intimate behaviours (this excluded sexual intercourse and measured the progression of sexual behaviours, e.g. have you ever spent time with a girl in a private place?) or on sexual abstinence rates. However, at 12-month intervention, participants were less likely than controls to report ever having sex without a condom ($P < 0.05$). Forehand *et al.* [44] found that children whose parents attended an enhanced communication intervention showed no difference in sexual risk (i.e. having engaged in or intending to engage in sexual intercourse at 12-month follow-up) than those in the control or comparison group. Youth in the Saving Sex for Later programme [45] showed decreases in behavioural risks (i.e. lifetime behaviour: whether youths had a girlfriend or boyfriend, had kissed, held hands and kissed and hugged a long time) compared with controls ($P < 0.05$); however, more intimate sexual behaviours were not examined. No programme effects were seen for Familias Unidas + Parent Preadolescent Training for HIV Prevention (PATH) [46] on unprotected sexual behaviours (in the past 90 days) compared with either control group. However, compared with the control group receiving an English language course in place of the united families element (ESOL + PATH), the intervention group showed decreased rates of STIs and unsafe sex

at last intercourse ($P < 0.05$). Compared with the control group receiving a heart health-based programme (HEART + PATH), the intervention group reported decreased incidence of STIs ($P < 0.05$).

Secondary outcomes

Five parent-based studies reported communication outcomes [43–46]. The REAL Men programme [43] produced inconsistent effects on father and son reports of sexual health-related communication at different follow-up times. Intervention fathers reported increased discussion ($P < 0.05$) at 3- and 12-month follow-up, although no difference was reported at 6 months. However, intervention sons reported no significant increase in sex-related communication at any follow-up period (details of all control and comparison groups are reported in Table II). Forehand *et al.* [44] found greater mean changes at 6- and 12-month follow-up ($P < 0.05$) in enhanced intervention parents' reports of sexual communication and responsiveness to sexual communication initiated by their child compared with comparison and control groups. Enhanced intervention effects on children's reports were less consistent, showing higher mean changes at post-intervention for both measures compared with both control groups but not at subsequent follow-ups. Intervention parents from the Let's Talk programme (C. Z. Gustafson, unpublished results) showed improved scores for quality of parent/child communication ($P < 0.05$) compared with pre-intervention scores. The Saving Sex for Later programme [45] showed positive effects on parents' reports of communication ($P < 0.001$). Growth curve analysis from the Familias Unidas + PATH programme [46] showed that compared with the control group (ESOL + PATH), the intervention group reported increased parent–adolescent communication ($P < 0.05$). However, there was no difference in parent–adolescent communication between groups at 36-month follow-up.

What types of family-focused interventions are effective at influencing sexual risks?

Primary outcomes

Seven studies [47, 48, 51–53, 56, 57, 58] examined the effects of six family-based programmes on

health and social outcomes related to sexual health. Evaluation of Keepin' It R.E.A.L. (mother/adolescent HIV prevention programme) [48] at 12-month follow-up indicated no significant effects of either intervention condition on abstinence or involvement in intimate sexual behaviours. However, among sexually active participants, those in the social cognitive therapy and life skills-based groups were more likely than controls to report condom use at last sexual intercourse ($P < 0.05$). Two studies [47, 53] examining intervention effects on sexual health outcomes at 12-month follow-up found no effect on sexual behaviour and pregnancy rates. Evaluation of the Chicago HIV prevention and Adolescent Mental health Project (CHAMP) family programme [51, 52] revealed a significant reduction in the time adolescents spent in situations of sexual possibility (Where youths are alone with other youths in private settings without adult supervision) ($P < 0.01$). There were also short-term programme effects of Focus on Kids + Informed Parents and Children Together (FOK + ImPACT) [56, 57] at the 6-month follow-up compared with FOK only participants, with FOK + ImPACT participants being less likely to report having had sexual intercourse ($P < 0.05$) and unprotected intercourse ($P < 0.01$). At the 24-month follow-up [57], there were no significant differences between FOK + ImPACT and FOK only participants on any of the sexual health measures, but participants who received FOK + ImPACT + boosters were less likely to report being pregnant or getting a girl pregnant ($P < 0.05$) (overall 62 people) compared with FOK only participants. The Parents Who Care programme [58] reduced sexual initiation only among African American participants who received the group administered version of the programme but not among other ethnic groups.

Secondary outcomes

Ten studies [47–57] examined the impact of 10 programmes on communication skills. Two studies [50, 54] examining the parent–adolescent relationship education (PARE) and SHAPE programmes, respectively, found no significant effects on communication about sexual behaviours at any follow-

up in intervention family groups. The CHAMP family programme [51, 52] was found to have had significant short-term effects on comfort in communication (all $P < 0.01$). However, CHAMP intervention families and FOK + ImPACT reported significantly higher levels of problem communication among families. The ImPACT programme was examined at various follow-up times. There were no effects of participation in ImPACT on adolescent and parent perceptions of communication and inconsistent effects of FOK + ImPACT on adolescent's perceptions of parental communication and monitoring. At 6-month follow-up, after adjusting for baseline differences, FOK + ImPACT participants reported significantly higher perceptions of parental monitoring; however, no difference in perceptions of monitoring was seen at 2 and 12 months nor in open communication at 2-, 6- or 12-month follow-up [55, 56]. Stanton *et al.* [57] found a positive effect in the proportion of people asking a recent partner if they always used condoms ($P < 0.01$). Furthermore, at 24 months, a positive programme effect for family communication about HIV/AIDS, but effects in both outcomes were only seen in the FOK + ImPACT + boosters intervention group. At post-test, there was a positive effect of the RAP programme [47] on parent–child communication ($P < 0.05$), but at the 1-year follow-up, this difference between intervention and control families was no longer significant. Although the Keepin' It R.E.A.L. programme [48] had a significant 'positive effect on mothers' reports of mother–daughter discussion, there was no significant effect on daughters' reciprocal reports of communication.

Discussion

An emerging North American evidence base was present at the time of writing; however, no evidence of European or other non-US sexual risk prevention research was found. The uncritical application of an effective US-based intervention on a different population may pose problems depending upon its generalizability and transferability, particularly in light

of demographic, cultural and policy differences between populations. However, this ought not to be seen as a barrier to investigating current evidence to identify effective components within existing programmes to inform the development of a new programme or the adaptation of an existing programme that can be trailed. With high rates of sexual activity, increasing rates of STIs and high rates of teenage pregnancy in young European people, particularly in the United Kingdom, evidence from this review examining the effectiveness of current sexual risk prevention interventions aimed at parents and families adds to the evidence base with which to inform policies, practice and the development of interventions relating to young people's sexual health and well-being [31]. In addition, it informs the development of sex and relationship education policies and practices to enhance children's sexual health and well-being in European Union and other developed countries.

Parent compared with family studies

Parent-based interventions (where the target population was parents) were examined and compared with family-based interventions (where both parent/s and child/children were included with the intervention focusing primarily on children). Overall, parent-based interventions showed preliminary evidence of programme effectiveness, whereas family-based interventions showed few effective results, thus preventing firm conclusions being drawn regarding their programme effectiveness. There was inconsistent evidence that parent-based interventions were effective at improving sexual behaviour outcomes. However, evidence from family-based interventions showed minimal effects on adolescent behaviour. Findings did demonstrate that in some cases [42], parents can be as effective at delivering information as health experts. Our findings suggest that interventions delivered to parents may improve parent-child communication about sex. However, evidence from family-based interventions, particularly those whose aim was to prevent sexual risk taking behaviour, showed that they were not effective at improving parent-child

communication. However, intensive family-based interventions (e.g. CHAMP Family Programme) suggest more promising outcomes relating to family communication of, for example, sensitive issues [51, 52].

Sexual health-specific versus broader intervention aims

Of the six studies examining parent-based interventions, five [42–45] specifically aimed to address sexual behaviours and one [46] aimed to address wider health outcomes (e.g. substance use). Of those examining family-based interventions, seven [47–54] specifically addressed sexual behaviour and four [55–58] examined wider health outcomes. Findings from studies examining multiple health behaviours indicated that they improved parent-child communication and produced limited and short-term effects on health outcomes (e.g. sexual intercourse, unprotected sex or pregnancy). Studies examining multiple health behaviours may have more effect on health and social outcomes, including sexual health outcomes, than those solely targeting sexual health outcomes. However, these studies all had longer follow-up times and therefore older participants on which to report. Thus, participants had more opportunities and measurable time in which to initiate sexual behaviours. Positive programme effects from the FOK + ImPACT series of interventions showed promise [56, 57] as did Familias Unidas [46]. However, overall, there was insufficient information on which to draw firm conclusions regarding intervention effectiveness for reducing sexual risk behaviour and mediating factors for sexual risk.

Primary versus secondary outcomes

Generally, interventions showed more consistent effectiveness at improving the modifying factors of risk taking, such as sexual communication. However, there was no evidence to suggest that improved communication, even in the long term, had an effect on the sexual risk behaviours of intervention youth [47, 55–57]. Due to lack of consistency in the outcomes reported across studies, these

results can only be examined in relation to their specified programme and population. In several studies (see Table II), few health and social outcomes relating to sexual activity were reported. In many cases, they were not examined at all. This may have been due to the perceived suitability of this as a measurable outcome in younger children, particularly with respect to participants' likely sexual experience at programme delivery and follow-up times. Furthermore, the definition of sexual activity differed from study to study as such those examining sexual intercourse as the only measure (as opposed to other types of sexual activity such as oral sex or caressing) are less likely to report significant effects.

Limitations

Over 12 000 titles and abstracts were identified and 440 potentially relevant studies were screened to identify 17 studies focusing on family and parent interventions. In addition, this review was conducted using a standardized and transparent approach, adhering to NICE protocols for the development of public health programme guidance [16]. Although employing rigorous systematic methods, this work was subject to time constraints, thus 91 articles identified in the original search were not retrieved due to time constraints relating to accessing either electronic or paper copies of the documents. Examination of the titles and, where indicated, the abstracts showed that no unretrieved articles referred to parent/family-based interventions. However, without site of the full articles, it is a possibility that relevant studies may have been missed.

Gaps in the evidence

This systematic review identified that there were no published parent/family-based interventions outside the United States aiming to reduce or moderate sexual risk behaviours that met the inclusion criteria. Although interventions for parents of young people at risk of antisocial behaviour, such as conduct disorder, are currently being undertaken in some developed countries (e.g. United Kingdom), such interventions incorporate substance use but

not sexual risk prevention [28–30]. Further searches identified ongoing community-based and family-focused interventions relating to substance use [59], but none examined sexual health outcomes. This highlights the gaps in interventions aiming to comprehensively address adolescent risk taking. Finally, the majority of studies examined here may not be generalizable to other populations as the study population consisted primarily of (United States) black and minority ethnic groups. The transferability of these studies to black and minority ethnic groups in other populations may be possible but has not yet been attempted. Similarly, its transferability or adaptability to, for example, a general European population is unknown.

Implications for further research

Evidence from this review adds to the knowledge base to inform the development of interventions aimed at improving the sexual health and well-being of young people, thus contributing to current objectives to promote sexual and reproductive health and accelerating action to achieve both global and European goals for adolescent health [60, 61]. Involving parents in community-based sexual health interventions provides alternative or complementary initiatives to school-based interventions. Furthermore, future interventions should closely examine the evidence to inform the programme dosage received by parents, particularly in family-based interventions, which may benefit from more comprehensive parental participation throughout. Mediators of sexual behaviour such as parent–child communication were identified as being sensitive to intervention. In addition, future studies ought to consider outcomes relating to different levels of sexual activity as indicators of risk (e.g. engagement in non-penetrative sexual behaviours such as oral sex or petting) as they may be an indicator of developing sexual behaviour and potential sexual risks [62] in addition to parenting styles, which have also been associated with increased sexual risk taking [63]. Furthermore, wider sexual behaviours that indicate potential risk in

those not currently engaging in penetrative sexual intercourse (e.g. accessing pornography or other media for sexual or relationship information) should be studied to ensure the subtle spectrum of sexual behaviour development is observed which may highlight programme effectiveness or provide greater evidence of ineffectiveness.

Gaps in existing evidence indicate the need to expand on successful small-scale interventions in non-US countries, invest in initiatives that work to adapt successful programmes or conduct cross-country collaboration to develop generic initiatives. Furthermore, good quality longitudinal controlled studies, which take into account variation between and within countries, are needed to add to the evidence base for what is or is not effective at reducing sexual risk in young people of diverse racial/ethnic and socio-economic backgrounds as well as countries of residence. A longitudinal policy evaluation on young people's sexual health including, for example, teenage pregnancy would be central to supporting such work. Additionally, the inclusion of sexual health prevention into ongoing or future multiple health behaviour prevention studies (e.g. strengthening families) would also help inform policy and practice and ensure that interventions to improve and promote adolescent health are comprehensive in their approach. In relation to research practice, the current lack of European, Australian or Canadian sexual risk prevention models provides an opportunity to lay the foundations that will ensure future studies employ a standardized approach to reporting and analysing population characteristics (e.g. gender, ethnicity) and outcomes investigated which will facilitate wider comparison of their effectiveness at the highest standard.

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Conflict of interest statement

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