Sex Education
Vol. 10, No. 2, May 2010, 187–199

Routledge
Taylor & Francis Group

Sex education beyond school: implications for practice and research

Juping Yu*

Faculty of Health, Sport and Science, University of Glamorgan, Pontypridd, UK

The negative consequences of teenage sexual behaviour are issues of concern in Britain and many other western countries. Over one-quarter of British young people are reported to become sexually active prior to the age of 16 and the rate of teenage pregnancy remains one of the highest in Western Europe. Current UK Government policy on sex education highlights the provision of skills for 'safe sex' at school to reduce teenage pregnancy rates. This paper argues that school cannot alone provide sufficient guidance to change teenage sexual behaviour, as school, family, religion, peers and media all have their part to play. Cooperation between schools, young people, their families and communities is crucial to enhance the effectiveness of sex education and to promote positive sexual health.

Introduction

Recent news in England about a boy who possibly fathered a baby girl at 12 has provoked a fierce political debate over the high rate of teenage pregnancies in the United Kingdom, politicians stating that the case raised 'huge worrying' questions about sex education and the sexualisation of modern British society (Bingham 2009). Based on UK national surveys, over one-quarter of young people become sexually active prior to the age of 16 (Wellings et al. 2001; Currie et al. 2008). The adverse consequences of early sexual initiation, such as increased lifetime sexual partners, unwanted teenage pregnancies and sexually transmitted infections (STIs), are issues of concern in Britain and many other countries. The UK teenage pregnancy rate remains one of the highest in Western Europe (Darroch, Sigh, and Frost 2001). Moreover, the number of new episodes of STIs in young people is still on the increase (Health Protection Agency 2008).

Current government policy has argued for the provision of skills for 'safe sex' at school (Social Exclusion Unit 1999). However, a range of factors have been reported to be relevant to teenage sexual behaviour, including biological determinants such as age, hormone levels and puberty developments (Edgardh 2002; He et al. 2004), individual variables such as attitudes, self-esteem and school performance (Bonell et al. 2005), and social factors such as family and peers (Sieving et al. 2006; Yu 2008). Biological variables are unlikely to be modified, while personal factors are often regulated by socio-cultural norms (Wellings et al. 1994). This paper therefore focuses on the social environment in which young people shape their sexual behaviour.

Aim

The aim of this paper is to review the current literature on school sex education and the role social factors play in teenage sexual behaviour.

*Email: jyu@glam.ac.uk

ISSN 1468-1811 print/ISSN 1472-0825 online

DOI: 10.1080/14681811003666515
http://www.informaworld.com

Methods

The CINAHL, MEDLINE, ASSIA and PsycINFO databases were searched, using the terms 'sexual attitude/value', 'sexual behaviour', 'sex education' and 'teenager/adolescent/young people' in combination. The inclusion criteria were as follows:

- Publication dates: between 2000 and 2009.
- Population: 13–19 year olds.
- Language: English.
- Type of study: quantitative research, qualitative research and literature reviews.

The review excluded studies that examined homosexual behaviour due to the complexity and limited studies in this area, and also studies that explored personal and biological variables on teenage sexual behaviour because of the focus of this review.

A total of 1458 references were retrieved. The titles and abstracts were scanned and full manuscripts of relevant papers obtained. References within these papers were also examined. A meta-analysis was not feasible due to the heterogeneity of the studies in terms of the samples, settings and designs. Therefore, the findings were organised into themes using a narrative approach.

Results

The majority of the studies reviewed involved young people themselves only, although some also involved parents and friends. Five key themes were identified: sex education at school, family environment, religion, interactions with peers, and media.

Sex education at school

Sources of sex education for adolescents were examined in three UK national surveys (Wellings et al. 2001; Macdowall et al. 2006; Currie et al. 2008). School-based sex education was reported as the main source of information about sex, others included parents, peers and media. Similar findings were found in a survey of 682 youth in China (Zhang, Li, and Shah 2007).

The effects of school-based sex education on sexual knowledge and skills have been explored. In England, Stephenson et al. (2004) conducted a school-based randomised trial of over 8000 pupils aged 13–14 years to evaluate the long-term effect of pupil-led sex education. The programme showed some positive impact on self-reported knowledge of methods to prevent STIs and skills in using condoms at age 16 years ($p = 0.02$ and $p < 0.0001$, respectively). In Scotland, the Sexual Health and Relationships: Safe, Happy and Responsible (SHARE) programme was developed for 13–15 year olds. Respondents ($n = 2689$) in the intervention group scored significantly higher on knowledge about sexual health than those ($n = 2812$) in the control group ($p = 0.003$–0.0006) (Wight et al. 2002). Healthy Respect was part of the SHARE project as implemented in 10 schools in Lothian. Tucker et al. (2007) reported that, among 2796 pupils in the intervention groups, there was a significant increase in confidence about getting and using condoms, and in believing that 'condom use reduces the chance of contracting a STI' (adjusted odds ratio [OR_{adj}] = 0.90–1.22, $OR_{adj} = 1.09$–1.47, $OR_{adj} = 0.88$–1.14, respectively), but there were no significant differences in the remaining eight items about knowledge, attitudes or intentions related to condom use.

Examinations of the impact of school-based sex education on attitudes and behaviour revealed different results. Using data from a US national survey, Kohler, Manhart, and

Lafferty (2008) compared the sexual health risks of 1719 respondents who received abstinence-only or comprehensive sex education with those who received no formal sex education. Neither type of intervention significantly reduced the incidence of STIs. Compared with no sex education at all, comprehensive sex education significantly correlated with fewer pregnancies and was marginally associated with a lower likelihood of having had sex ($OR_{adj} = 0.4$, $p = 0.001$; $OR_{adj} = 0.7$, $p = 0.06$ respectively); however, abstinence-only education was associated with neither outcome. Sather and Zinn (2002) confirmed that an intervention of abstinence-only education did not significantly change 132 students' attitudes and intention to premarital sex. Although its sample size was small, the study supported the view that abstinence-only sex education was an ineffective method.

Some positive outcomes were found by others. Somers and Surmann (2005) examined multiple sources (peers, media, school and other adults) and timing of sex education among 672 pupils. Earlier learning from most sources and greater input from schools on various sexual topics significantly reduced the frequency of both oral sex and sexual intercourse. Analysing data from the US National Survey of Family Growth ($n = 2019$), Mueller, Gavin, and Kukkarni (2008) reported that receiving sex education at schools, churches or community organisations was associated with more likelihood of postponing sexual intercourse until age 15 (OR = 0.41, 95% confidence interval [CI] = 0.21–0.77 for males; OR = 0.29, 95% CI = 0.17–0.48 for females), being virgins (OR = 0.42, 95% CI = 0.25–0.69), and using contraception at first sexual intercourse among males (OR = 2.77, 95% CI = 1.13–6.81). A large Hong Kong survey also confirmed these findings (Wong et al. 2006). Respondents receiving school AIDS education were significantly less likely to have had sex (OR = 0.5, $p = 0.024$) and twice as likely to discuss emotional ($p = 0.001$) or puberty issues ($p = 0.032$). Even so, this intervention did not result in fewer pregnancies or in increased condom use ($p > 0.05$).

In a US study of 158 adolescents, Somers and Eaves (2002) found that learning about sex at school earlier was not associated with the loss of virginity earlier. In Scotland, the SHARE intervention showed no effects on self-reported sexual initiation, contraceptive behaviour and unwanted pregnancy (Wight et al. 2002). A later evaluation using National Health Service data confirmed that participants in the SHARE group did not differ significantly in rates of terminations and conception by age 20, compared with those in the control group ($p = 0.18$–0.40) (Henderson et al. 2007). A systematic review of 26 randomised control trials also suggested that school interventions did not delay sexual intercourse, improve the use of contraceptives or reduce pregnancies (DiCenso et al. 2002). Another review on sex and HIV education programmes worldwide, however, indicated that these programmes did not hasten or increase sexual behaviour, but some did show desired effects on sexual behaviour (Kirby, Laris, and Rolleri 2007).

It may be difficult to draw conclusions from these studies, as interventions with diverse aims were utilised in dissimilar groups. School was seen as important at least in the provision of sexual information. Even so, it was not the sole influential factor to teenage sexual behaviour.

Family environment

The family, as a primary means of the socialisation of children, can have some influence on adolescents. Interactions with parents, family disruption and socio-economic disadvantages were all found to be important.

Interactions with parents

Sex was reported as a topic too embarrassing to discuss at home in many cultures (Jaccard, Dittus, and Gordon 2000; Robert et al. 2005; Yu 2007a), but parents were identified as the preferred source of sex education when compared with peers, school, media and health professionals, as reported in a US study of 672 pupils (Somers and Surmann 2004). Of 4206 parents surveyed in Canada, 95% agreed or strongly agreed that sex education should be the shared responsibility of school and home, but most respondents did not discuss sex-related topics in detail with their children (Weaver et al. 2002). These findings were echoed in qualitative studies of Chinese-British families in Scotland (Yu 2007a) and of young people in Mongolia (Roberts et al. 2005). Reported barriers to such communication included the limited sexual knowledge of parents, lack of communication skills, language obstacles, divergent intergenerational sexual values, lack of available time to speak to children, and parents not receiving sex education from their own parents (Walker 2001; Mbugua 2007; Yu 2007a, b).

Although reported family discussion about sex was limited, its impact on teenagers was widely investigated. A US survey by Vesely et al. (2004) involved 1253 teenagers and their parents, showing that greater family communication correlated with a teenager being a virgin (OR $=$ 1.29, $p < 0.05$). A community-based study of 1083 youth by Aspy et al. (2007) confirmed these findings. Sexually active respondents were also found to be more likely to use birth control if taught at home about delaying sexual activity and contraception ($p < 0.01$). Similarly, a study of 894 pupils in Ghana showed that family communication about HIV/AIDS was significantly associated with condom use (OR $=$ 2.21, $p < 0.05$), although it did not result in sexual abstinence (Adu-Mireku 2003). A positive effect on contraceptive use and even decreased negative peer influences on sexual risky behaviour was reported in two US studies, one of 544 African-American females (DiClemente et al. 2001) and the other of 355 African-American and Hispanic adolescent–mother dyads (Whitaker and Miller 2000).

However, McNeely et al. (2002) studied a sample of 2006 adolescent–mother dyads in the United States and did not find an association between family discussion about sex and the timing of sexual initiation. This longitudinal study raised some methodological issues. Some respondents who reported being non-virgins at the first interview gave contradictory answers to this question at the subsequent interview. This may be due to recall difficulties, but challenges the reliability of longitudinal studies on teenage sexual behaviour. Using data from 9530 children–mother dyads, Fingerson (2005) reported that the greater the dialogue about sex within the dyad, the greater the likelihood of teenage sexual activity. The impact of family communication appeared to depend on what parents talked about. A longitudinal study by Romo et al. (2002) documented matters of talking about dating and sex among 55 Latino mothers and their children. Dialogue about values and beliefs was found to have a positive impact on attitudes to premarital sex and sexual initiation; however, talking about everyday activities had no effect. The generalisibility of this study is limited due to its small, non-randomised sample, yet it did show the importance of parental values and support findings reported by others (Somers and Paulson 2000; Somers and Gleason 2001; McNeely et al. 2002).

Some evidence supports the positive influence of parental disapproval of teenage sex on teenagers (Dittus and Jaccard 2000; He et al. 2004). On the other hand, parents with permissive attitudes to sex tend to raise children who held similar views, who lose virginity at a young age, and who have more sexual partners (Fingerson 2005). The quality of parent–child relationships can be influential (Jaccard, Dittus, and Gordon 2000). After

controlling for age and peer variables among a sample of 568 African-American females, Maguen and Armistead (2006) found that both parental sexual attitudes (OR = 1.17, $p < 0.01$) and quality of parent–child relationships (OR = 0.90, $p < 0.05$) were significant predictors of sexual initiation. Knafo and Schwartz (2003) suggested that a positive parent–child relationship provided the context within which parents passed on their values more effectively and children were more willing to accept their values. Young people, especially girls, living in this environment were more likely to hold values similar to their parents and delay sexual initiation (Fingerson 2005).

Family disruption and socio-economic disadvantages

A large survey of 14,287 adolescents in nine European countries showed that intact family was a key protective factor for early sexual engagement (OR = 1.7–3.0, $p < 0.05$), while close parent–adolescent relationships and high levels of parental monitoring were less protective (Lenciauskiene and Zaborskis 2008). Studies conducted in various countries confirm these findings. In England, Bonell et al. (2006) followed 8766 pupils for 2.5 years, reporting that respondents from lone-parent families were more likely to report having had sex in the 2.5 years ($OR_{adj} = 1.39$ for females; $OR_{adj} = 1.32$ for males). In the United States, analysing a subset of sample from a longitudinal survey ($n = 497$), Upchurch et al. (2001) found that Hispanic adolescents who lived with one sole parent or non-biological parents held more permissive sexual attitudes and lost their virginity at a younger age ($p < 0.001$). A longitudinal study of 567 Swedish girls revealed a similar pattern (Magnusson 2001). In addition, Moore and Chase-Lansdale (2001) found that living in any type of married family protected African-American females from getting pregnant ($n = 289$, $p \leq 0.05$).

The influence of family disruption may be explained by other factors. For example, family socio-economic status was found to be associated with parental marital status (Upchurch et al. 2001). Young people from lower social class families or deprived backgrounds tended to lose virginity or become pregnant at a younger age (Aten et al. 2002; McNeely et al. 2002). Bonell et al. (2006) found that teenagers whose mothers gave birth to them as teenagers were more likely to report being non-virgins. Family disruption might be related to a general loss of parental control, and some studies showed a positive impact of parental monitoring and family rules on teenage sexual behaviour (McNeely et al. 2002; Wight, Williamson, and Henderson 2006).

Religion

The positive impact of religious commitment and participation in religious activities have also been reported. In a New Zealand longitudinal study of a cohort of 1020 participants, Paul et al. (2000) found that religious beliefs/practices were an important factor enabling them to sustain sexual abstinence to age 21. A study of 1153 adolescents in Nigeria by Odimegwu (2005) revealed its positive effect on both sexual attitudes and initiation ($p < 0.05$). In addition, its positive impact on condom use was reported in a US study of 230 first-year students at a Catholic university ($p < 0.01$) (Zaleski and Schiaffino 2000).

Yu (2007b), in a qualitative study of Chinese-British teenagers and parents in Scotland, reported that religious practice reinforced the quantity and quality of parent–child interactions and may have made the young people more willing to share parental values. Religious practices also offered the teenagers more opportunities to make friends who hold similar sexual values. Christian parents highlighted the value of providing sex

education within a moral and religious context by teaching young people the option of sexual abstinence (Yu 2007a).

Interactions with peers

Peers were considered increasingly important as young people grew up and overwhelmed the influence of parents in guiding sexual behaviour, as reported by He et al. (2004) in a US survey of 1487 pupils. Adolescents were found to share more details of a sexual nature and felt more comfortable discussing sexual issues with friends than parents (Wellings et al. 2001; Amoran, Onadeko, and Adeniyi 2004; Shoveller et al. 2004; Macdowall et al. 2006; Currie et al. 2008). Friends were also seen as the major source of information about sex and relationships (Chung et al. 2005; Currie et al. 2008; Yu 2008).

The effect of dialogue about sex with friends appeared to depend on the content of such communication. In a small US study of 157 school teenagers, Somers and Gleason (2001) found that gaining more information about sexual intercourse from friends was related to more liberal sexual attitudes in respondents. A US survey by Lefkowitz and Espinosa-Hernandez (2007) explored sex-related communication with mothers and close friends among 182 first-year college students aged 17–19 years. More frequent discussion about behaviours and feelings and more open and comfortable communication with friends correlated with respondents being non-virgins (OR $= 2.14$, $p < 0.05$; OR $= 5.57$, $p < 0.001$, respectively). Similarly, Amoran, Onadeko, and Adeniyi (2004) found in a community-based study ($n = 274$) in Nigeria that significantly more respondents who sought sexual information from peers had had sex compared with those who sought information from parents, teachers and other sources (43.2%, 25.2%, 14.4%, and 17.1%, respectively, $p < 0.001$). In contrast, greater dialogue about abstinence with friends correlated with less likelihood of sexual initiation (OR $= 0.46, p < 0.001$). The direction of this correlation was unclear. It could be that the respondents with more open attitudes intended to initiate sexual intercourse and therefore looked for relevant information from their peers. Despite the small sample size of these studies, they do indicate some negative influences of peers.

Similarity in sexual behaviour between young people and their peers has also been reported. On the one hand, perceived peer norms about refraining from sex were a strong and consistent protector of sexual initiation, as revealed in US studies by Santelli et al. (2004) of 3161 pupils ($p \leq 0.001$) and by Maguen and Armistead (2006) of 568 female African-American youth (OR $= 0.81$, $p < 0.05$). On the other hand, Potard, Courtois, and Rusch (2008) in a French study found that respondents ($n = 1000$) who perceived a high prevalence of sexual initiations of peers tended to have greater intentions to have sex. Such perception was also related to earlier sexual debut, as reported by Babalola (2004) in a survey of 1327 youth in Rwanda, Africa (OR $= 1.88, p \leq 0.05$ for males; OR $= 1.73, p \leq 0.1$ for males). Analysing data from 2436 respondents who were virgins at baseline in the US National Longitudinal Study of Adolescent Health, Sieving et al. (2006) found that the greater the proportion of friends who were non-virgins at baseline, the higher the odds of sexual debut of respondents at follow up (OR $= 1.01$, $p \leq 0.001$). Similarly, a US longitudinal study by Nahom et al. (2001) revealed that school youth ($n = 1173$) who were sexually experienced were more likely than virgins to divulge that their friends had had sex. These findings were echoed in another US study (OR $= 3.03, p < 0.01$) (Maguen and Armistead 2006).

It was uncertain whether this similarity was due to young people selecting friends of similar behaviour or due to the actual influence of friends. Drawing on data from 1350 participants in the US National Longitudinal Study of Adolescent Health, Henry et al. (2007) found that respondents tended to socialise with friends who had similar sexual

attitudes and behaviour, but they tended to select friends based on similar values rather than similar behaviour. Similar findings were reported by Yu (2008) in a qualitative study of Chinese-British teenagers.

Role of the media

Parents in some UK qualitative studies were found to use media such as television, books and magazines to open a channel for discussions about sex-related topics (Walker 2001; Yu 2007b). A qualitative study by Ngo, Ross, and Ratliff (2008) in Vietnam showed that 15–19 year olds used the Internet to obtain sexual information that was not available in the family or school on topics such as emotions and loving relationships, as well as publicly to discuss such information. A study of 682 Chinese youth also confirmed that knowledge of more taboo topics (sexuality, STIs, HIV/AIDS) was gained from mass media (Zhang, Li, and Shah 2007). Similarly, a qualitative study of young Cypriots showed that television and magazines were the main sources of information on sex, abortion and relationships (Lesta, Lazarus, and Essen 2008).

Lou et al. (2006) evaluated the feasibility and effectiveness of sex education conducted through the Internet in China. At post test, participants ($n = 624$) in the intervention group scored significantly higher on the overall sexual knowledge than those ($n = 713$) in the control group ($p < 0.001$). In the UK, Bragg (2006) received positive responses from teachers and pupils in a pilot study developing a teaching pack about media images of sex and relationships. 'Saving Sex for Later', a US intervention using three audio-CDs, was developed to help parent–child communication about values, expectations, household rules, emotions and physical development (O'Donnell et al. 2007). Thirty-eight focus groups with youth and parents were conducted to help develop this resource. These studies showed the potential of using media to facilitate sex education.

Concerns about sexual content on television were raised by some US studies. In a national longitudinal survey of 1792 adolescents aged 12–17 years, respondents who were found to view more sexual content on television at baseline tended to lose their virginity during the subsequent year ($p < 0.05$) (Collins et al. 2004). Somers and Tynan (2006) studied a sample of 473 pupils, indicating that viewing sexual content and sexually suggestive dialogue on television was a positive predictor for the frequency of sexual intercourse and the number of sexual partners in White respondents ($p < 0.05$), whereas this relationship was not found in Black and Hispanic respondents. These findings were supported by a recent national longitudinal survey, where 12–17 year olds ($n = 2003$) who were exposed to high levels of sexual content on television were twice as likely to become pregnant in the subsequent three years, compared with those with lower levels of exposure ($p < 0.05$) (Chandra et al. 2008).

Collins et al. (2003) studied a national sample of 506 adolescents aged 12–17 years who had been regular viewers of *Friends* the previous year, suggesting that parents appeared to be able to mediate the adverse consequences of media exposure. Respondents who talked about condom effectiveness with parents or an adult as a result of watching *Friends* were found to be more than twice as likely to report that they learned something new about condoms (38% vs. 15%, $p < 0.05$).

Discussion

This paper has reviewed the current literature on sex education at school and the role social factors play in teenage sexual behaviour. School, family, religion, peers and media have all been shown to be influential.

The role of school sex education appears to be controversial. Opponents are worried that early and comprehensive sex education programmes may encourage pupils to become sexually active. It seems that there is not enough evidence to support this view. School has been seen as an important source to gain factual knowledge about sex, contraception and sexually transmitted diseases, although its effectiveness in delaying sexual initiation and reducing teenage pregnancy rates still remains debatable. In Britain, although some general guidance is established (Department of Education and Employment 2000), the implementation of sex education varies from school to school and even from teacher to teacher within a single school (Buston, Wight, and Scott 2001). Inadequate training for teachers and the lack of interest in some teachers in providing such a course have influenced the outcome of this education (Buston, Wight, and Scott 2001). Programmes led by older peers or combinations of medical staff and peers may be more interesting and acceptable to young people (Stephenson et al. 2004), but sufficient training and support is essential for both adult-led and peer-led sex education (Mellanby et al. 2001).

Sex education at school is necessary, but it is not the only way nor sufficient to change teenage sexual behaviour. The family provides an environment in which young people often shape their sexual values consciously or unconsciously (Coleman and Hendry 1999). The literature indicates that teenagers may not receive as much sex education from their parents as they do from schools, friends and media (Currie et al. 2008; Macdowall et al. 2006), but positive impacts of parent–child communication have been suggested, especially relating to sexual values consistent with cultural and religious beliefs. Factual information about sex may be difficult for parents to talk about due to specific knowledge and skills required. A parent role could involve communicating about values, providing a positive family environment and monitoring their children's behaviour. Programmes such as the 'Parent–Adolescent Relationship Education' (Lederman and Mian 2003) and 'Safe Sex for Later' (O'Donnell et al. 2007) in the United States could be used to enhance family communication about sex and perhaps to contribute to delaying sexual initiation and reducing teenage pregnancy rates, HIV and other STIs.

There is some evidence to support the influence of peers on teenage sexual behaviour. Friendship can provide a common ground for teenagers to share sexual information and intimate feelings, and seek support, something they are often less likely to get from their parents or schools (Yu 2008). Increased interactions with friends, shared sexual values and support from friends suggest that sex education could work more effectively if such influence is considered.

The media have been increasingly used for sex education. However, what sexual content portrays and how young people apply media content are crucial. Negative impacts may be reduced through parental monitoring and dialogue about family rules and parents' own sexual values.

Implications for research and practice

There are three key implications. First, the perspectives of young people should be heard. Without listening to their views, it is unlikely that sex education programmes will meet their needs. Existing research tends to rely on quantitative methods, while there are difficulties inherent in conducting such research. For example, inconsistent reports have been found in longitudinal studies (McNeely et al. 2002). Upchurch et al. (2002) reported that only 22.2% of respondents provided the same date of sexual initiation. Qualitative designs can complement quantitative approaches and provide an understanding of adolescent sexual behaviour from their own perspectives.

Second, consideration of the crucial role of parents could make sex education work more effectively. UK Government guidelines for sex and relationship education have stressed the importance of cooperation between schools and parents (Department of Education and Employment 2000). The positive effect of involving parents has also been reported (Black et al. 2001; Lederman and Mian 2003).

Third, sex education interventions should be culturally appropriate to the needs of young people from diverse cultural and religious backgrounds. Cultural and ethnic differences in teenage sexual behaviour have been reported. In the United Kingdom, South Asian and Chinese people tends to be more likely to hold traditional sexual attitudes and become sexually active at a later age, whereas black teenagers are more likely to have had sex before the age of 16 years (Wellings et al. 1994; Yu 2008). Young people from diverse ethnic groups have reported divergent preferences towards sex education and sexual information (Comeman and Testa 2007). A better understanding of their views would be helpful.

Conclusions

Developing effective sex education programmes is challenging due to the complexity of teenage sexual behaviour and the difficulties inherent in conducting research to evaluate their effectiveness. However, consideration of this education within the social contexts in which teenagers shape their sexual behaviour would be potentially significant to the development of sex education policy and sexual health services for young people, including those from minority ethnic groups.

Sex education needs to engage more with young people with respect to their needs and consideration of the potential influences on their values and behaviour. Family, friends, religious teaching and media can complement sex education provided at school. Cooperation between these sources of provision is crucial to enhance the effectiveness of sex education and promote positive sexual health.

References

Adu-Mireku, S. 2003. Family communication about HIV/AIDS and sexual behaviour among senior secondary school students in Accra, Ghana. *African Health Sciences* 3: 7–14.

Amoran, O.E., M.O. Onadeko, and J.D. Adeniyi. 2004. Parental influence on adolescent sexual initiation practices in Ibadan, Nigeria. *International Quarterly of Community Health Education* 23: 73–81.

Aspya, C.B., S.K. Vesely, R.F. Oman, S. Rodinec, L. Marshall, and K. McLeroyd. 2007. Parental communication and youth sexual behaviour. *Journal of Adolescence* 30: 449–66.

Aten, M.J., D.M. Siegel, M. Enaharo, and P. Auinger. 2002. Keeping middle school students abstinent: outcomes of a primary prevention intervention. *Journal of Adolescent Health* 31: 70–8.

Babalola, S. 2004. Perceived peer behavior and the timing of sexual debut in Rwanda: A survival analysis of youth data. *Journal of Youth and Adolescence* 33: 353–63.

Bingham, J. 2009. Boy who became father at 13 raises 'worrying' questions. http://www.telegraph.co.uk/news/uknews/4613803/Boy-who-became-father-at-13-raises-worrying-questions.html. (accessed March 9, 2009).

Black, S.M., L. Simkin, R. Ledsky, C. Perkins, and J.M. Calabrese. 2001. Effects of a parent–child communications intervention on young adolescents; risk for early onset of sexual intercourse. *Family Planning Perspectives* 33: 52–61.

Bonell, C., E. Allen, V. Strange, A. Oakley, A. Copas, A. Johnson, and J. Stephenson. 2006. Influence of family type and parenting behaviours on teenage sexual behaviour and conceptions. *Journal of Epidemiology & Community Health* 60: 502–6.

Bonell, C., E. Allen, V. Strange, A. Oakley, J. Stephenson, and A. Johnson. 2005. The effect of dislike of school on risk of teenage pregnancy: testing of hypotheses using longitudinal data from a randomised trial of sex education. *Journal of Epidemiology & Community Health* 59: 223–30.

Bragg, S. 2006. 'Having a real debate': Using media as a resource in sex education. *Sex Education* 6: 317–31.

Buston, K., D. Wight, and S. Scott. 2001. Difficulty and diversity: The context and practice of sex education. *British Journal of Sociology of Education* 22: 353–68.

Chandra, A., S.C. Martino, R.L. Collins, M.N. Elliott, S.H. Berry, D.E. Kanouse, and A. Miu. 2008. Does watching sex on television predict teen pregnancy? Findings from a national longitudinal survey of youth. *Pediatrics* 122: 1047–54.

Chung, P.J., H. Borneo, S.D. Kilpatrick, D.M. Lopez, R. Travis, Jr., C. Lui, S. Khandwala, and M.A. Schuster. 2005. Parent–adolescent communication about sex in Filipino American families: A demonstration of community-based participatory research. *Ambulatory Pediatrics* 5: 50–5.

Coleman, J., and L.B. Hendry. 1999. *The nature of adolescence*. 3rd ed. London: Routledge.

Comeman, L., and A. Testa. 2007. Preferences towards sex education and information from an ethnically diverse sample of young people. *Sex Education* 7: 293–307.

Collins, R.L., M.N. Elliott, S.H. Berry, D.E. Kanouse, and S.B. Hunter. 2003. Entertainment television as a healthy sex educator: The impact of condom-efficacy information in an episode of Friends. *Pediatrics* 112: 1115–21.

Collins, R.L., M.N. Elliott, S.H. Berry, D.E. Kanouse, D. Kunkel, S.B. Hunter, and A. Miu. 2004. Watching sex on television predicts adolescent initiation of sexual behaviour. *Paediatrics* 114: e280–9.

Currie, C., K. Levin, J. Todd, and the HBSC national team. 2008. Health behaviour in school-aged children: World health organization collaborative cross-national study (HBSC): Findings from the 2006 HBSC survey in Scotland. http://www.education.ed.ac.uk/cahru/publications/HBSC_National_Report_2008.pdf (accessed May 2, 2008).

Darroch, J.E., S. Sigh, and J.J. Frost. 2001. Differences in teenage pregnancy rates among five developed countries: The roles of sexual activity and contraceptive use. *Family Planning Perspectives* 33: 244–50, 280.

Department of Education and Employment. 2000. Sex and relationship education guidance. http://www.dfes.gov.uk/sreguidance/sexeducation.pdf (accessed May 18, 2008).

DiCenso, A., G. Guyatt, A. Willan, and L. Griffith. 2002. Interventions to reduce unintended pregnancies among adolescents: systematic review of randomized controlled trials. *British Medical Journal* 324: 1426–30.

DiClemente, R.J., G. Wingood, R. Crosby, B.K. Cobb, K. Harrington, and S.L. Davies. 2001. Parent–adolescent communication and sexual risk behaviours among African American adolescent females. *Journal of Pediatrics* 139: 407–12.

Dittus, P.J., and J. Jaccard. 2000. Adolescents' perceptions of maternal disapproval of sex: Relationship to sexual outcomes. *Journal of Adolescent Health* 26: 268–78.

Edgardh, K. 2002. Sexual behaviour and early coitarche in a national sample of 17-year-old Swedish boys. *Acta Pediatric* 91: 985–91.

Fingerson, L. 2005. Do mothers' opinions matter in teens' sexual activity? *Journal of Family Issues* 26: 947–74.

He, K., E. Kramer, R.F. Houser, V.R. Chomitz, and K.A. Hacker. 2004. Defining and understanding healthy lifestyles choices for adolescents. *Journal of Adolescent Health* 35: 26–33.

Health Protection Agency. 2008. Selected STI diagnoses and diagnosis rates from GUM clinics: 2003–2007. http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1215589013156 (accessed March 8, 2009).

Henderson, M., D. Wight, G.M. Raab, C. Abraham, A. Parkes, S. Scott, and G. Hart. 2007. Impact of a theoretically based sex education programme (SHARE) delivered by teachers on NHS registered conceptions and terminations: final results of cluster randomised trial. *British Medical Journal* 334: 33.

Henry, D.B., M.E. Schoeny, D.P. Deptula, and J.T. Slavick. 2007. Peer selection and socialization effects on adolescent intercourse without a condom and attitudes about the costs of sex. *Child Development* 78: 825–38.

Jaccard, J., P.J. Dittus, and V.V. Gordon. 2000. Parent-teen communication about premarital sex: factors associated with the extent of communication. *Journal of Adolescent Research* 15: 187–208.

Kirby, D.B., B.A. Laris, and L.A. Rolleri. 2007. Sex and HIV education programs: Their impact on sexual behaviours of young people throughout the world. *Journal of Adolescent Health* 40: 206–17.

Knafo, A., and S.H. Schwartz. 2003. Parenting and adolescents' accuracy in perceiving parental values. *Child Development* 74: 595–611.

Kohler, P.K., L.E. Manhart, and W.E. Lafferty. 2008. Abstinence-only and comprehensive sex education and the initiation of sexual activity and teen pregnancy. *Journal of Adolescent Health* 42: 344–51.

Lederman, R.P., and T.S. Mian. 2003. The parent-adolescent relationship education (PARE) program: A curriculum for prevention of STDs and pregnancy in middle school youth. *Behavioral Medicine* 29: 33–41.

Lefkowitz, E.S., and G. Espinosa-Hernandez. 2007. Sex-related communication with mothers and close friends during the transition to university. *Journal of Sex Research* 44: 17–27.

Lenciauskiene, I., and A. Zaborskis. 2008. The effects of family structure, parent–child relationship and parental monitoring on early sexual behaviour among adolescents in nine European countries. *Scandinavian Journal of Public Health* 36: 607–18.

Lesta, S., J.V. Lazarus, and B. Essen. 2008. Young Cypriots on sex education and adequacy of information received on sexuality issues. *Sex Education* 8: 237–46.

Lou, C., Q. Zhao, E. Gao, and I.H. Shah. 2006. Can the Internet be used effectively to provide sex education to young people in China? *Journal of Adolescent Health* 39: 720–8.

Macdowall, W., K. Wellings, C.H. Mercer, K. Manchahal, A.J. Copas, S. McManus, K.A. Fenton, B. Erens, and A.M. Johnson. 2006. Learning about sex: Results from Natsal 2000. *Health Education & Behavior* 33: 802–11.

Magnusson, C. 2001. Adolescent girls' sexual attitudes and opposite-sex relations in 1970 and in 1996. *Journal of Adolescent Health* 28: 242–52.

Maguen, S., and L. Armistead. 2006. Abstinence among female adolescents: Do parents matter above and beyond the influence of peers? *American Journal of Orthopsychiatry* 76: 260–4.

Mbugua, N. 2007. Factors inhibiting educated mothers in Kenya from giving meaningful sex-education to their daughters. *Social Science & Medicine* 64: 1079–89.

McNeely, C., M.L. Shew, T. Beuhring, R. Sieving, B.C. Miller, and R.W.M. Blum. 2002. Mothers' influence on the timing of first sex among 14- and 15-year-olds. *Journal of Adolescent Health* 31: 256–65.

Mellanby, A.R., R.G. Newcombe, J. Rees, and J.H. Tripp. 2001. A comparative study of peer-led and adult-led school sex education. *Health Education Research* 16: 481–2.

Moore, M.R., and P.L. Chase-Lansdale. 2001. Sexual intercourse and pregnancy among African American girls in high-poverty neighborhoods: The role of family and perceived community environment. *Journal of Marriage and the Family* 63: 1146–57.

Mueller, T.E., L.E. Gavin, and A. Kulkarni. 2008. The association between sex education and youth's engagement in sexual intercourse, age at first intercourse, and birth control use. *Journal of Adolescent Health* 42: 89–96.

Nahom, D., E. Wells, M.R. Gillmore, M. Hoppe, D.M. Morrison, M. Archibald, E. Murowchick, A. Wilsdon, and L. Graham. 2001. Differences by gender and sexual experience in adolescent sexual behaviour: Implications for education and HIV prevention. *Journal of School Health* 71: 153–8.

Ngo, A.D., M.W. Ross, and E.A. Ratliff. 2008. Internet influences on sexual practices among young people in Hanoi, Vietnam. *Culture, Health & Sexuality* 10, Suppl: s201–13.

Odimegwu, C. 2005. Influence of religion on adolescent sexual attitudes and behaviour among Nigerian university students: Affiliation or commitment? *African Journal of Reproductive Health* 9: 125–40.

O'Donnell, L., R. Wilson-Simmons, K. Dash, V. Jeanbaptiste, A. Myint-U, J. Moss, and A. Stueve. 2007. Saving sex for later: Developing a parent–child communication intervention to delay sexual initiation among young adolescents. *Sex Education* 7: 107–25.

Paul, C., J. Fitzjohn, J. Eberhart-Phillips, P. Herbison, and N. Dickson. 2000. Sexual abstinence at age 21 in New Zealand: The importance of religion. *Social Science & Medicine* 51: 1–10.

Potard, C., R. Courtois, and E. Rusch. 2008. The influence of peers on risky sexual behaviour during adolescence. *European Journal of Contraception and Reproductive Health Care* 13: 264–70.

Robert, A.B., C. Oyun, E. Batnasan, and L. Laing. 2005. Exploring the social and cultural context of sexual health for young people in Mongolia: Implications for health promotion. *Social Science & Medicine* 60: 1487–98.

Romo, L.F., E.S. Lefkowitz, M. Sigman, and T.K. Au. 2002. A longitudinal study of maternal messages about dating and sexuality and their influence on Latino adolescents. *Journal of Adolescent Health* 31: 59–69.

Santelli, J.S., J. Kaiser, L. Hirsch, A. Radosh, L. Simkin, and S. Middlestadt. 2004. Initiation of sexual intercourse among middle school adolescents: The influence of psychosocial factors. *Journal of Adolescent Health* 34: 200–8.

Sather, L., and K. Zinn. 2002. Effects of abstinence-only education on adolescent attitudes and values concerning premarital sexual intercourse. *Family & Community Health* 25: 1–15.

Shoveller, J.A., J.L. Johnson, D.B. Langille, and T. Mitchell. 2004. Socio-cultural influences on young people's sexual development. *Social Science & Medicine* 59: 473–87.

Sieving, R.E., M.E. Eisenberg, S. Pettingell, and C. Skay. 2006. Friends' influence on adolescents' first sexual intercourse. *Perspectives on Sexual & Reproductive Health* 38: 13–9.

Social Exclusion Unit. 1999. *Teenage pregnancy*. London: The Stationery Office.

Somers, C.L., and M.W. Eaves. 2002. Is earlier sex education harmful? An analysis of the timing of school-based sex education and adolescent sexual behaviours. *Research in Education* 67: 23–32.

Somers, C.L., and J.H. Gleason. 2001. Does source of sex education predict adolescents' sexual knowledge, attitudes and behaviour? *Education* 121: 674–81.

Somers, C.L., and S.E. Paulson. 2000. Students' perceptions of parent–adolescent closeness and communication about sexuality: Relations with sexual knowledge, attitudes, and behaviours. *Journal of Adolescence* 23: 629–44.

Somers, C.L., and A.T. Surmann. 2004. Adolescents' preferences for source of sex education. *Child Study Journal* 34: 47–59.

Somers, C.L., and A.T. Surmann. 2005. Sources and timing of sex education: Relations with American adolescent sexual attitudes and behaviour. *Educational Review* 57: 37–53.

Somers, C.L., and J.J. Tynan. 2006. Consumption of sexual dialogue and content on television and adolescent sexual outcomes: Multiethnic findings. *Adolescence* 41: 15–38.

Stephenson, J.M., V. Strange, S. Forrest, A. Oakley, A. Copas, E. Allen, A. Babiker, et al. 2004. Pupil-led sex education in England (RIPPLE study): Cluster-randomised intervention trial. *Lancet* 364: 338–46.

Tucker, J.S., A.E. Fitzmaurice, M. Imamura, S. Penfold, G.C. Penney, E. Teijlingen, J. Shucksmith, and K.L. Philip. 2007. The effect of the national demonstration project healthy respect on teenage sexual health behaviour. *European Journal of Public Health* 17: 33–41.

Upchurch, D.M., C.S. Aneshensel, J. Mudgal, and C.S. McNeely. 2001. Sociocultural contexts of time to first sex among Hispanic adolescents. *Journal of Marriage and the Family* 63: 1158–69.

Upchurch, D.M., L.A. Lillard, C.S. Aneshensel, and N.F. Li. 2002. Inconsistencies in reporting the occurrence and timing of first intercourse among adolescents. *Journal of Sex Research* 39: 197–206.

Vesely, S.K., V.H. Wyatt, R.F. Oman, C.B. Aspy, M.C. Kegler, S. Rodine, L. Marshall, and K.R. Mcleroy. 2004. The potential protective effects of youth assets from adolescent sexual risk behaviours. *Journal of Adolescent Health* 34: 356–65.

Walker, J.L. 2001. A qualitative study of parents' experiences of providing sex education for their children: The implications for health education. *Health Education Journal* 60: 132–46.

Weaver, A.D., E.S. Byers, H.A. Sears, J.N. Cohen, and H.E.S. Randall. 2002. Sexual health education at school and at home: Attitudes and experiences of new Brunswick parents. *Canadian Journal of Human Sexuality* 11: 19–31.

Wellings, K., J. Field, A. Johnson, and J. Wadsworth. 1994. *Sexual behaviour in Britain: The national survey of sexual attitudes and lifestyles*. London: Penguin Books.

Wellings, K., K. Nanchahal, W. Macdowall, S. McManus, B. Erens, C.H. Mercer, A.M. Johnson, et al. 2001. Sexual behaviour in Britain: Early heterosexual experience. *Lancet* 358: 1843–50.

Whitaker, D.J., and K.S. Miller. 2000. Parent–adolescent discussions about sex and condoms: Impact on peer influences of sexual risk behaviour. *Journal of Adolescent Research* 15: 251–73.

Wight, D., G.M. Raab, M. Henderson, C. Abraham, K. Buston, G. Hart, and S. Scott. 2002. Limits of teacher delivered sex education: Interim behavioural outcomes from randomized trial. *British Medical Journal* 324: 1430–5.

Wight, D., L. Williamson, and M. Henderson. 2006. Parental influences on young people's sexual behaviour: A longitudinal analysis. *Journal of Adolescence* 29: 473–94.

Wong, W.C.W., A. Lee, K.K.A. Tsang, and H. Lynn. 2006. The impact of AIDS/sex education by schools or family doctors on Hong Kong Chinese adolescents. *Psychology, Health & Medicine* 11: 108–16.

Yu, J. 2007a. School sex education: Views within British-Chinese families. *Asian Journal of Nursing* 10: 171–8.

Yu, J. 2007b. British-born Chinese teenagers: The influence of Chinese ethnicity on their attitudes towards sexual behaviour. *Nursing and Health Sciences* 9: 69–75.

Yu, J. 2008. Perspectives of Chinese British adolescents on sexual behaviour within their socio-cultural contexts in Scotland. *Diversity in Health and Social Care* 5: 177–86.

Zaleski, E.H., and K.M. Schiaffino. 2000. Religiosity and sexual risk-taking behavior during the transition to college. *Journal of Adolescence* 23: 223–7.

Zhang, L., X. Li, and I.H. Shah. 2007. Where do Chinese adolescents obtain knowledge of sex? Implications for sex education in China. *Health Education* 107: 351–63.