

Factors Associated with Parent–Child Communication About HIV/AIDS in the United States and Kenya: A Cross-Cultural Comparison

Melissa N. Poulsen · Kim S. Miller · Carol Lin ·
Amy Fasula · Hilde Vandenhoudt · Sarah C. Wyckoff ·
Juliet Ochura · Christopher O. Obong’o · Rex Forehand

Published online: 11 September 2009
© Springer Science+Business Media, LLC 2009

Abstract This study explored parent–child communication about HIV/AIDS among two populations disproportionately affected by HIV. Similar computer-assisted surveys were completed by parents of pre-teens, including 1,115 African American parents of 9–12-year-old children in southeastern US and 403 parents of 10–12-year-old children in Nyanza Province, Kenya. Multivariate analyses identified factors associated with parental report of ever talking to their child about HIV/AIDS. Twenty-nine percent of US parents and 40% in Kenya had never talked to their pre-teen about HIV/AIDS. In both countries, communication was more likely if parents perceived their child to be ready to learn about sex topics, had gotten information to educate their child about sex, and had greater sexual communication responsiveness (skill, comfort, and confidence communicating about sexuality). Programs are needed that help parents assess children’s

readiness to learn about sexual issues; access accurate information about adolescent sexual risks; and acquire the responsiveness needed to discuss sexual issues, including HIV/AIDS.

Keywords Pre-teens · Sexual risk communication · Parent–child communication · Sexual risk prevention · Kenya

Introduction

Recent calls to action to create an “HIV-Free Generation” highlight the need for novel strategies for youth HIV prevention that go beyond the common individual-level approaches; additional approaches are needed to address the social contexts that influence adolescents’ behavior. With young people ages 15–24 accounting for 45% of new adult HIV infections globally in 2007 [1], this is a critical time to invest in effective strategies to reach youth early to help them make healthy decisions and reduce their risk for HIV and other sexually transmitted infections prior to their entry into the risk environment.

Parental involvement in HIV prevention is one such strategy, and is increasingly recognized as an important component of sexual risk prevention among youth [2]. Considering the unique influence parents have on their children’s decision-making, the World Health Organization (WHO) recommends supporting activities for parents as a component of adolescent health programs [3]. Enhancing communication between parents and children specifically about HIV/AIDS may be an important strategy to prevent adolescent risk behaviors. However, discussing issues related to sexuality is often difficult for parents. In this paper, we identify factors that are associated with parents

M. N. Poulsen (✉)
Global AIDS Program, NCHHSTP, Centers for Disease Control
and Prevention, 1600 Clifton Road, NE, Mailstop E-45, Atlanta,
GA 30333, USA
e-mail: mpoulsen@cdc.gov

K. S. Miller · C. Lin · A. Fasula · S. C. Wyckoff
Division of HIV/AIDS Prevention, NCHHSTP, Centers for
Disease Control and Prevention, Atlanta, GA, USA

H. Vandenhoudt
Institute for Tropical Medicine, Antwerp, Belgium

J. Ochura · C. O. Obong’o
Kenya Medical Research Institute, Kisumu, Kenya

R. Forehand
University of Vermont, Burlington, VT, USA

talking to their children about HIV/AIDS in order to inform the development of programs that aim to help parents overcome barriers to communication. Using data from two different studies conducted in areas that are disproportionately affected by HIV in the United States (US) and Kenya, we look across two cultures and identify potential similarities in the factors that influence whether or not parents discuss HIV/AIDS with their children. By identifying such similarities we pinpoint factors that may be important cross-culturally to include in interventions that seek to enhance parent–child communication about HIV/AIDS.

A wide body of research, albeit mostly from the US, demonstrates a strong link between parent–child communication about sexual issues and decreased adolescent sexual risk behavior. For example, studies have found that adolescents who talked with their parents about sexual issues, including HIV-specific discussions, were more likely to use condoms or have fewer sex partners compared to those who had not [4–6]. In turn, a nationally representative sample of youth identify parents as the most important influence on their sexual decisions [7].

Notably, the effectiveness of parent–child sexuality communication largely depends on the timing and quality of communication. Specifically, such communication is most effective at reducing sexual risk-taking when it occurs early, prior to sexual initiation [8] and when conducted in a skilled, open, and receptive manner [9–12]. This quality of being skilled, comfortable, and confident in communicating has been quantified and termed “parental responsiveness,” and is linked to increased delay in sexual initiation, increased partner communication about sexual risk and condom use, increased condom use, and decreased overall sexual risk [9–11, 13].

The link between parent–child sexuality communication and sexual behavior has not been well-established in the African context, in part due to the fact that such communication is uncommon in this region of the world. Historically, it is considered taboo for parents in many areas of sub-Saharan Africa to discuss sexual issues with their children [14, 15]; instead, sex education came from extended family members or during pubertal initiation rites [16]. Due to socio-economic changes that have altered family structures and social norms, these traditional systems of communication have been uprooted, leaving a gap in children’s sex education [15, 17–20]. While there are cultural challenges to promoting parent–child communication about sexual issues in sub-Saharan Africa, to the authors’ knowledge there is no evidence that such strategies could not be as effective at reducing adolescent sexual risk behavior as has been shown in the US, particularly since youth in Africa are receptive to receiving information about sexuality from their parents [14].

Discussing HIV/AIDS with children in settings in which contracting HIV is a credible risk is a critical part of a parent’s ability to protect their children’s health. Discussing issues related to sexuality is often difficult for parents, however, and many barriers that parents face in having such conversations are similar from the inner-cities of the US to the most rural parts of sub-Saharan Africa. Some common barriers include the perception that it is not parents’ responsibility to communicate with children about sexuality [17], or that others—such as schoolteachers—will provide sex education [19, 21]; fear that talking to children about sexual issues will encourage sexual activity [17]; and the perception that their children are not ready [22] or too young [17] to receive information about sexual issues. In addition, several common barriers to communication link directly to parental responsiveness, including embarrassment [17, 23] or discomfort [21] in discussing sexual issues and apprehension about their children’s response to such discussion [22, 24]; lack of confidence in their own ability to communicate with their children about sexuality [25]; and lack of knowledge or skills to conduct such discussions [23]. Reciprocally, aspects of parental responsiveness are frequently found to be facilitators of communication, including confidence in one’s ability to talk with children about sexual issues [25, 26], and greater skill and comfort in communicating [27].

Parental beliefs and attitudes are also related to the occurrence of sexuality communication. Studies have shown that parental beliefs about their child’s sexual behavior, or the child’s peers’ sexual behavior are linked to sexual communication [27, 28]. In terms of attitudes, Miller and Whitaker [27] also found that mothers who endorsed abstinence until marriage were less likely to talk with their adolescent about condoms; similarly, Lehr and colleagues found that fathers with less conservative sexual values were more likely to share information about sexuality with their sons [26].

As noted by Raffaelli and colleagues [28], the factors associated with parent–child communication differ by topic, and so it is important to examine parent–child communication in the context of a specific topic. The goal of this study was to identify factors specifically related to whether parents communicate with their children about HIV/AIDS in settings in which HIV is a credible risk for adolescents. Based on the barriers and facilitators of parent–child sexuality communication identified in the research literature and outlined above, we hypothesized that parents are more likely to have discussed HIV/AIDS with their pre-teen children if they:

- have less cautionary attitudes about talking to children about sexuality (i.e. do not fear that talking about sex with children will promote sexual behavior);

- believe their children are ready to learn about sexual topics;
- believe that it is their responsibility to educate their children about sexual issues;
- have information to help them discuss sexuality with their children;
- have greater sexual communication responsiveness.

While some demographic characteristics are incorporated into the analyses, the purpose of this study is to identify factors associated with HIV/AIDS communication that can potentially be influenced through parent-focused programs.

In contrast with many previous studies, which have mostly examined sexual communication between parents and their teenage children, we focus on parent–child communication with pre-teen children. Moreover, with access to similar datasets from two culturally distinct settings, we examine whether or not findings are similar across cultures. Both of the study populations—one from an African American population in the southeastern US, the second from rural Kenya—are disproportionately affected by the HIV epidemic. African Americans, with an HIV prevalence of 1.7%, are over seven times more likely to have HIV than non-Hispanic whites, who have an HIV prevalence of 0.2%. Furthermore, although African American adolescents (ages 13–19) only make up 17% of the adolescent population, they accounted for 70% of new HIV diagnoses reported among teens in 2006 in the 33 states reporting [29]. US data from 2007 show that among African American students, 26% of males and 7% of females report initiating sex before age 13 [30], providing an estimate of just how early information needs to be transmitted to children in order to reach them before sexual initiation.

With an HIV prevalence of 15.3%, Nyanza Province is the region most affected by HIV in Kenya, where the prevalence among 15–49 year-olds is 7.4% [31]. A 2003–4 survey of adolescents aged 15–19 years from the Asembo community of Nyanza Province, where the study was conducted, showed an HIV prevalence of 8.6% among females and 0.8% among males [32]. The median age of reported sexual initiation was 16.5 years for females and 15.5 years for males, and 14% of adolescents had initiated sex before age 13 [33]. Again, these data show the early age at which children need to receive information to make healthy sexual decisions.

Parents are in a unique position to provide their children with this critical information, although they may need support to overcome barriers to communicating with their children about sexuality. By examining factors related to parent–child communication about HIV/AIDS in multiple cultures, common factors that cut across cultures can be identified and considered for inclusion in HIV prevention programs.

Methods

In this paper, we compare factors associated with parent–child communication about HIV/AIDS in the US and Kenya using baseline data from two studies evaluating a pre-risk HIV prevention intervention. The intervention, called *Parents Matter!* in the US and *Families Matter!* in Kenya, supports parents in helping prevent their children from engaging in risky sexual behavior by enhancing parent–child communication about sexuality and sexual risk reduction and improving other positive parenting practices such as positive reinforcement and parental monitoring. (See Forehand et al. [34].) Both evaluations measured similar factors before and after the intervention, and at several follow-up points after the intervention, including demographics, parenting behaviors, sexual communication topics, sexual communication responsiveness, and sexual behavior.

Participants

United States

The *Parents Matter!* intervention and evaluation were conducted in the southeastern US in three sites: Athens, Georgia and surrounding counties; Atlanta, Georgia; and Little Rock, Arkansas. To be eligible to participate, an adult must have been the legal guardian of a pre-teen in the 4th or 5th grade, have lived with the child continuously for the past three years, and self-identified as African American. Both the adult guardian (hereafter referred to as “parent”) and child had to be fluent in English. From the original 1,127 parent–child pairs, 12 were excluded as they did not meet the eligibility criteria. Of the remaining 1,115, 11 parents did not provide a response to the item associated with the outcome measure—HIV/AIDS communication—and so were excluded from the analyses. Thus, these analyses included a convenience sample of 1,104 parent–child dyads.

Kenya

The *Families Matter!* intervention and evaluation were conducted in Asembo, a rural subsistence farming and fishing community on the shores of Lake Victoria in Nyanza Province, Kenya. To be eligible to participate, an adult must have been the primary caregiver of a child aged 10–12 years at the time of the baseline assessment; have lived with the child continuously for the past three years, spending most nights in the same household; and have been an Asembo resident with no intention of moving during the one-year study period. Both the primary caregiver

(hereafter referred to as “parent”) and child had to speak Dholuo, the local language, which was used during the intervention and assessments. A total of 403 parent–child dyads completed the baseline survey.

Procedures

The protocols for these evaluations were approved by the Institutional Review Boards at all participating institutions: for the US evaluation this included the US Centers for Disease Control and Prevention, University of Georgia, Georgia State University, and University of Arkansas for Medical Sciences; for the Kenya evaluation this included the US Centers for Disease Control and Prevention, Kenya Medical Research Institute, and Institute of Tropical Medicine, Antwerp, Belgium.

Recruitment

Families in the US were recruited to participate through community agencies (including housing authorities, schools, churches, and recreational programs) and through flyers, referrals, and community events such as health fairs and parent–teacher association meetings. Families in Kenya were recruited through 13 primary schools with the support and assistance of the Ministry of Education.

Data Collection

Written-informed consent from parents and assent from children were obtained prior to completing the baseline survey. US families were paid \$25 to cover transportation expenses and their time. Kenya participants were provided a gift as a thank-you for participating: parents received a bar of soap, and children received a pencil, eraser, sharpener, and notebook.

In both sites the assessments were conducted in a variety of community venues; parent and child assessments occurred simultaneously, but in separate areas. To further ensure confidentiality, interviews were completed using an identification number instead of the participant’s name. Assessments were delivered using audio computer-assisted self-interview (ACASI). Questions were administered orally by a computerized voice over headphones and visually on the computer touch screen. The assessments took 45–60 min for parents to complete and 30–45 min for children.

Measures

The main outcome variable for these analyses was whether or not parent–child communication about HIV/AIDS had occurred. Six factors were examined as potentially associated with parent–child communication about HIV/AIDS

(parental attitudes about talking to adolescents about sexuality, parental perception of child’s readiness to learn about sex, parental perception that the child is thinking about having sex, parental perception of responsibility to educate one’s child about sex, parental acquisition of information to educate one’s child about sex, and parental communication responsiveness). Because most of the items from the Kenya survey had true/false response categories, some variables in the US data were dichotomized to maintain consistency in the analyses. Several demographic variables were also included in the analyses as control variables. Because the focus of the study was to identify characteristics of parents who had discussed HIV/AIDS with their pre-teen child in order to better inform parent-focused interventions, we used the reports of parents rather than children for this study.

Numerous steps were taken to ensure the reliability, validity, age appropriateness and cultural relevance of the measures used in both studies. Most measures for the US evaluation were selected based on prior use with similar populations (e.g. African Americans parents with school-aged children). All measures were reviewed by focus groups of African Americans and were pilot-tested to ensure appropriateness and comprehension of the measures. Teachers of 4th and 5th graders also provided feedback on the clarity of the child measures. Measures for the Kenya evaluation were chosen from the US evaluation. Previous formative work with the Asembo community around the context of sexuality education demonstrated that parents in Kenya and the US face similar barriers in communicating with their children about sexuality issues [35], providing support for the cultural relevancy of drawing from parenting constructs used in the US study for the Kenya evaluation. The measures were extensively pre-tested in Asembo; questions eliciting inconsistent responses were reviewed and revised by focus groups, program staff, and other community members for comprehension. All measures were translated into Dholuo and back-translated to English.

Demographic Variables

Demographic variables included in the analysis of the US data were site, child’s gender and age, parent’s gender and age (recoded categorically as 20–29, 30–39, 40–49, and 50 or older), whether or not the parent was the biological parent of the child (coded as biological parent or non-biological parent), parent’s education level (coded as incomplete high school, high school or GED complete, some college or two-year degree, and four-year degree or graduate school complete), marital status (coded as never married, previously married but no longer, and currently married), and family income (coded categorically as

\$0–\$199; \$200–\$499; \$500–\$999; \$1,000–\$1,999; \$2,000–\$2,999; \$3,000–\$3,999; and \$4,000 or more/month).

Demographic variables included in the analysis of the Kenya data were child's gender and age, parent's gender and age (recoded categorically as 19–29, 30–39, 40–49, and 50 or older), whether or not the parent was the biological parent of the child (coded as biological parent or non-biological parent), parent's level of education (coded as none or primary school incomplete, primary school complete, attended secondary school or higher), and marital status (coded as never-married, married, or widowed). Family income data were not collected in Kenya.

Independent Variables

Parental Attitudes About Talking to Adolescents About Sexuality In the US evaluation, parents' attitude about talking to their children about sexuality was measured by parents' level of agreement with the statement, "If I talk to [target child] about sex topics, s/he will think it's okay to have sex." Response categories (not at all true, a little true, very true) were dichotomized to a true/false response for the analyses, with "a little true" considered to be "true."

In the Kenya evaluation, parents' attitude about talking to their children about sexuality was measured by a true/false response to the statement, "I think if I talk to [target child] about sex issues I will encourage him/her to have sex."

Parental Perception of Child's Readiness to Learn About Sex In the US evaluation, parents' perception of their child's readiness to learn about sex was measured by parents' level of agreement with the statement, "[Target child] is ready to begin learning about sex topics." Response categories (not at all true, a little true, very true) were dichotomized to a true/false response for the analyses, with "a little true" considered to be "true."

In the Kenya evaluation, parents' perception of their child's readiness to learn about sex was measured by a true/false response to the statement, "I think [target child] is still too young to learn about sex topics and issues." Responses to this item were reverse coded for the analyses.

Parental Perception That Child is Thinking About Having Sex In both evaluations, parents' perception that their child is thinking about having sex was measured by a yes/no response to the question, "Do you think [target child] is thinking about becoming sexually active?"

Parental Perception of Responsibility to Educate One's Child About Sex In the US evaluation, parents' perception of their responsibility to educate their child about sex was measured by parents' level of agreement with the

statement, "It's my job to make sure [target child] knows about sex." Response categories (not at all true, a little true, very true) were dichotomized to a true/false response for the analyses, with "a little true" considered to be "true."

In the Kenya evaluation, parents' perception of their responsibility to educate their child about sex was measured by a true/false response to a single item, "It's my duty to make sure [target child] knows about sex."

Parental Acquisition of Information to Educate One's Child About Sex In both the US and Kenya evaluation, a single item with a yes/no response measured whether parents had acquired information to help them educate their child about sex: "Have you ever gotten information to help you understand or teach your child about sex issues?"

Parental Sexual Communication Responsiveness Sexual communication responsiveness was measured by items that assessed parents' perception of their skill, comfort, and confidence in communicating with their child about sex. Response options for the items in the US scale ranged from 1 (not at all true) to 3 (very true). Responses to the five items¹ included in the scale were summed to create a responsiveness scale that ranged from 5 to 15. A Cronbach alpha coefficient of 0.725 for this scale indicated that there was adequate intervariation between items.

Response options for the items in the Kenya scale were 0 (false) or 1 (true). Responses to the nine items² were summed to create a responsiveness scale that ranged from 0 to 9. A Cronbach alpha coefficient of 0.792 for this scale indicated that there was adequate intervariation between items.

The parental sexual responsiveness scale was dichotomized into "highly responsive" and "less responsive" based on the 50th percentile of parents' scores (i.e. a score of at least 13 out of 15 for the US measure and at least 8 out

¹ Items included: (1) If my son/daughter asked me a question about a sex topic, I would be glad s/he asked; (2) If my son/daughter asked me a question about a sex topic, I would answer his/her question; (3) I feel comfortable talking to my son/daughter about sex topics; (4) I know how to talk to my child about sex topics; (5) I feel prepared to talk with my son/daughter about sex topics as s/he grows up.

² Items included: (1) If TC asked me a question about a sex issue I would respond; (2) If TC asked me a question about a sex issue I would try to answer his/her question with the information s/he needs; (3) TC can ask me the question she/she really wants to know about sex issues; (4) If TC asked me a question about a sex issue I would be embarrassed (reverse-coded); (5) I would be comfortable if TC asked me a question about a sex issue; (6) I am free talking to TC about sex issues; (7) I have enough information about sex issues to talk to TC; (8) I know how to talk to TC about sex issues; (9) I can answer the questions TC has about sex issues.

of 9 for the Kenya measure) to help compare responses across the two scales.

Outcome Measure

The outcome measure was parents' report of ever having talked to their target child about HIV or AIDS. This was measured by parents' response to the question, "How many times have you ever talked to [target child] about HIV/AIDS?" in the US and "Have you ever talked to [target child] about HIV or AIDS?" in Kenya. Response categories were dichotomized into a yes/no response for the analyses (original US responses included never, once or twice, and lots of times; Kenya responses included no never, yes once, and yes more than once).

Data Analyses

Summary statistics on baseline demographic characteristics and covariates are reported. To identify the factors associated with parent–child communication about HIV/AIDS, bivariate and multivariate analyses were conducted on non-weighted data. For each of the two datasets, bivariate analyses (chi-square statistic and Fisher's exact test) were first performed between possible factors and the main outcome measure, HIV/AIDS communication. Next, separate multivariate logistic regression analyses were conducted for each dataset to identify important factors associated with HIV/AIDS communication. Significant factors (defined by a P -value < 0.1) in the bivariate analyses were included in the multivariate models. A backward elimination procedure was used to select the best-fit model. Two-way interaction terms between the factors were also evaluated. The final model included all factors with a P -value less than 0.05. The Pearson goodness-of-fit test was applied to examine the fit of the final models. Adjusted odds ratios of significant factors from each of the two multivariate analyses are reported.

Results

A summary of participants' demographic characteristics is reported in Table 1. Notably, both study groups were dominated by female parents and had approximately the same proportion of girls and boys. Children in the US study had a median age of 10; children in the Kenya study had a median age of 12. The majority of parents who participated were the biological parent of the child in both the US (87%) and Kenya (75%). Most US parents had completed high school or higher. Parent education levels were low in Kenya, with only half of the parents having completed primary school (equivalent to eighth grade in the US); 19%

of parents had no schooling (not reported separately in Table 1). In terms of marital status, in the US 41% of parents had never married, 38% were currently married, and 21% had been previously married but were no longer. In Kenya, most parents were currently married (75%) and 22% of parents were widowed. Median family income among US participants was \$1,000–\$1,999/month. Income data was not collected in Kenya.

Table 2 provides the response frequencies to the main outcome measure, HIV/AIDS communication. The majority of US participants reported having discussed HIV/AIDS with their child, although 29% had never discussed the topic. Among Kenya participants, 40% had never discussed HIV/AIDS with their child. Mothers in the US sample were more likely to have discussed HIV/AIDS with their child (72%) than mothers in the Kenya sample (59%). Fathers were more likely to have discussed HIV/AIDS with their child in Kenya (78%) than in the US (45%).

Dichotomized responses to the six main independent variables are provided in Table 3. Interestingly, in the US, most parents believed that talking to children about sexuality does not encourage sex (88%) and perceived that their children were ready to learn about sex (80%). More parents in Kenya believed that talking does encourage sex (38%) and the majority (61%) felt that their children were too young to learn about sex. Most parents in the US and Kenya did not perceive that their children were thinking about having sex (93% and 84%, respectively). Almost all of the parents in the US (99%) perceived it to be their responsibility to educate their children about sex; a smaller majority of parents had this perception in Kenya (64%). A greater proportion of parents in Kenya (55%) had gotten information to educate their children about sex than in the US (37%). Sexual communication responsiveness scores were high overall in both settings.

Bivariate analyses indicated the following demographic variables should serve as covariates and be included in the multiple logistic regression analyses of both the US and Kenya data: parents' gender (US: $\chi^2(1, N = 1104) = 11.19$; Kenya: $\chi^2(1, N = 403) = 5.05, P < 0.1$), education (US: $\chi^2(3, N = 1102) = 9.53, P < 0.1$; Kenya: $\chi^2(2, N = 403) = 12.44, P < 0.1$), and marital status (US: $\chi^2(2, N = 1102) = 5.26, P < 0.1$; Kenya: $\chi^2(2, N = 402) = 9.52, P < 0.1$). Furthermore, study site ($\chi^2(2, N = 1104) = 13.42, P < 0.1$), child gender ($\chi^2(1, N = 1104) = 5.74, P < 0.1$), child age ($\chi^2(3, N = 1098) = 15.91, P < 0.1$), and family income ($\chi^2(6, N = 1086) = 13.00, P < 0.1$) were included in the US model as covariates and parents' age ($\chi^2(3, N = 403) = 9.49, P < 0.1$) was included in the Kenya analysis as a covariate. The bivariate analyses indicated that the following independent variables should be included as factors in both countries' multivariate analyses: parents' perception of

Table 1 Demographic characteristics of evaluation participants

	US (<i>n</i> = 1104)		Kenya (<i>n</i> = 403)	
	Frequency	Percentage	Frequency	Percentage
Site				
Athens, Georgia	318	28.8		
Atlanta, Georgia	322	29.2		
Little Rock, Arkansas	464	42.0		
Child sex				
Girls	610	55.3	212	52.6
Boys	494	44.7	191	47.4
Child age				
	Median = 10		Median = 12	
9	274	25.0		
10	509	46.4	87	21.6
11	272	24.8	109	27.0
12	43	3.9	207	51.4
Parent sex				
Females	1071	97.0	367	91.1
Males	33	3.0	36	8.9
Parent age				
	Median = 34		Median = 39	
20–29 (<i>19–29 in Kenya</i>)	232	21.0	58	14.4
30–39	560	50.8	148	36.7
40–49	230	20.9	121	30.0
50+	81	7.3	76	18.9
Relationship to child				
Biological parent	970	87.3	303	75.2
Non-biological parent	141	12.7	100	24.8
Parent education				
Incomplete high school	267	24.2		
Completed high school or GED	322	29.2		
Some college or 2 year degree	378	34.3		
College or advanced degree	135	12.3		
None or primary school incomplete			197	48.9
Primary school complete			138	34.2
Secondary school or higher			68	16.9
Parent marital status				
Never married	452	41.0	11	2.7
Previously married	234	21.2		
Widowed			90	22.3
Currently married	416	37.7	301	74.7
Family income				
\$0–\$199/month	50	4.6		
\$200–\$499/month	157	14.5		
\$500–\$999/month	233	21.5		
\$1,000–\$1,999/month	321	29.6		
\$2,000–\$2,999/month	179	16.5		
\$3,000–\$3,999/month	85	7.8		
\$4,000+	61	5.6		

Note Due to sporadic missing values, sample sizes will vary

their children's readiness to learn about sex (US: χ^2 (2, *N* = 1089) = 28.29, *P* < 0.1; Kenya: χ^2 (1, *N* = 403) = 9.44, *P* < 0.1); parents' perception of their responsibility to

educate their children about sex (US: χ^2 (1, *N* = 1100) = 3.66, *P* < 0.1; Kenya: χ^2 (1, *N* = 403) = 3.66, *P* < 0.1); whether parents got information to educate their

Table 2 Parental report of frequency of HIV/AIDS communication with child

	Never (%)	1–2 times (%)	Multiple times (%)
US			
Female caregivers	298 (27.8)	349 (32.6)	424 (39.6)
Male caregivers	18 (54.5)	8 (24.2)	7 (21.2)
All participants	316 (28.6)	357 (32.3)	431 (39.0)
Kenya			
Female caregivers	152 (41.4)	42 (11.4)	173 (47.1)
Male caregivers	8 (22.2)	2 (5.6)	26 (72.2)
All participants	160 (39.7)	44 (10.9)	199 (49.4)

Table 3 Dichotomized responses to survey items included as factors in the analyses

	US frequency (%)		Kenya frequency (%)	
Parental attitudes about talking to their children about sexuality				
Talking encourages sex	131 (12.1)		154 (38.2)	
Talking does not encourage sex	948 (87.9)		249 (61.8)	
Parental perception of child's readiness to learn about sex				
Not ready/too young	223 (20.5)		245 (60.8)	
Ready/not too young	866 (79.5)		158 (39.2)	
Parental perception that child is thinking about having sex				
Child thinking about having sex	83 (7.5)		65 (16.1)	
Child not thinking about having sex	1017 (92.5)		338 (83.9)	
Parental perception of responsibility to educate one's child about sex				
My duty	1084 (98.5)		257 (63.8)	
Not my duty	16 (1.5)		146 (36.2)	
Parental acquisition of information to educate one's child about sex				
Have gotten information	409 (37.2)		221 (54.8)	
Have not gotten information	691 (62.8)		182 (45.2)	
Parental sexual communication responsiveness				
	Median	Range	Median	Range
	13	5, 15	8	0, 9

Note Due to sporadic missing values, sample sizes will vary

children about sex (US: $\chi^2(1, N = 1100) = 44.71, P < 0.1$; Kenya: $\chi^2(1, N = 403) = 47.65, P < 0.1$); and sexual communication responsiveness (US: $\chi^2(1, N = 1082) = 61.90, P < 0.1$; Kenya: $\chi^2(1, N = 403) = 20.12, P < 0.1$). In addition, parental attitude about talking to children about sex was included in the US analysis ($\chi^2(1, N = 1079) = 4.26, P < 0.1$).

Results from the best-fit model of the multivariate logistic regression analyses (see Table 4) reveal that after controlling for different demographic variables, three factors were found to be significantly associated with parent–child HIV/AIDS communication in both the US and Kenya. In both populations, HIV/AIDS communication was more likely to have occurred if parents perceived their child to be ready to learn about sex topics (in the US, odds ratio [OR]: 1.43, 95% confidence interval [CI]: 1.02–2.01; in Kenya, OR: 1.77, CI: 1.11–2.83), if they had gotten information to educate their child about sex (US: OR: 2.33, CI: 1.69–3.20; Kenya: OR: 3.76, CI: 2.38–5.96),

and if parents reported greater sexual communication responsiveness (US: OR: 2.45, CI: (1.83–3.27); Kenya: OR: 1.87, CI: 1.17–3.01). The Pearson goodness-of-fit test was not significant for either sample (US: $P = 0.286$; Kenya: $P = 0.098$), suggesting adequate fit of the model.

Discussion

The purpose of this study was to identify variables associated with parent–child communication about HIV/AIDS in two high HIV prevalence settings in order to better inform programming to enhance parent–child communication about HIV/AIDS. We also set out to determine the similarities in associated factors across two cultures. Our results showed that the same three factors were associated with parent–child HIV/AIDS communication—parents'

Table 4 Demographic variables and factors associated with parent–child communication about HIV/AIDS in the US and Kenya: Multivariate analyses

	US			Kenya		
	Adjusted odds ratio	95% CI	<i>P</i> -value	Adjusted odds ratio	95% CI	<i>P</i> -value
Child age			0.009			
9	1					
10	1.362	(0.971, 1.909)				
11	1.837	(1.221, 2.762)				
12	2.790	(1.153, 6.750)				
Parent sex			0.001			
Male	1					
Female	3.567	(1.683, 7.559)				
Parent education						0.031
None or primary school incomplete				1		
Primary school complete				1.621	(0.980, 2.683)	
Attended secondary school or higher				2.234	(1.138, 4.385)	
Parent marital status						<0.001
Widowed				1		
Never-married				0.408	(0.095, 1.759)	
Married				0.329	(0.184, 0.589)	
Parental perception of child's readiness to learn about sex			0.000			0.017
Not ready/Too young	1			1		
Ready/Not too young	1.429	(1.019, 2.005)		1.771	(1.108, 2.831)	
Having gotten information to educate one's child about sex			0.039			<0.001
Did not get information	1			1		
Got information	2.327	(1.690, 3.204)		3.764	(2.377, 5.960)	
Parental sexual communication responsiveness			0.000			0.009
Less responsive (<8)	1			1		
Highly responsive (≥8)	2.449	(1.833, 3.271)		1.873	(1.167, 3.008)	

Results reported for best-fit model

perception that their children are ready to learn about sex, parental acquisition of information to educate their children about sex, and having high sexual communication responsiveness—were important in both the US and Kenya. These findings provide compelling evidence for the cross-cultural importance of these factors in facilitating parents' discussions about HIV/AIDS with their children and suggest that these factors should be considered in any program that aims to increase parent–child communication about HIV/AIDS, irrespective of the culture in which the program is implemented. These findings verified three of our hypotheses; the remaining two hypotheses—parents with less cautionary attitudes (i.e. who do not fear that talking about sex with children will lead to sexual activity) are more likely to discuss HIV/AIDS, and parents who believe it their responsibility to educate their children about

sexual issues are more likely to discuss HIV/AIDS—were not supported in either setting.

In the current study, we found that parents who perceive their child to be ready to learn about sexual issues are more likely to have discussed HIV/AIDS. This finding corroborates previous studies, which have found that mothers wait to talk to their children about sex issues until children are “ready” [22] and that parents' perception that children are too young to learn about sex is a barrier to communication [17]. Other studies have shown that mothers typically underestimate their adolescents' sexual activity [36, 37] and poorly predict their adolescents' age of sexual initiation [38]. Taken together, these data suggest that parents delay talking about sexual issues at a time when their children would benefit from information about risk reduction. The question, then, is how do parents decide when

their children are ready to learn about sexual issues, including HIV/AIDS? This is a potential area for future study.

We hypothesized that parents' perception of children's readiness to learn about sexual issues may be linked to whether they believe their children are thinking about becoming sexually active as well as children's age. While African American parents with older children were more likely to discuss HIV/AIDS, the belief that children were thinking about becoming sexually active was not found to be associated with HIV/AIDS communication in the US or Kenya, likely because so few parents believed this. An alternative hypothesis is that parents' awareness of the risks youth face influences the likelihood that they discuss sexual issues with their children. While additional research would better elucidate the relationship between risk-awareness and communication, raising parents' risk-awareness is a rational strategy for parent-focused interventions, and if implemented with parents of pre-teens, has the potential to encourage proactive and early communication, far before parents pick up on environmental cues.

We also found that parents who had acquired information to help educate their children about sexual issues were more likely to have discussed HIV/AIDS with their children. Due to the nonspecific wording of the measure, it is not possible to discern whether this factor is an indication of motivation (parents who are motivated to communicate with their children about sexuality seek out information) or knowledge (parents who have received information about sexuality are more knowledgeable and therefore more likely to communicate). Previous studies verify that parents with greater knowledge about AIDS are more likely to discuss the topic with their children [39], providing support for the latter hypothesis. Providing parents with accurate information regarding HIV/AIDS and other reproductive health information may boost parents' knowledge and confidence to discuss sexual issues such as HIV/AIDS with their children.

We found that parent-child HIV/AIDS communication was higher among parents with high sexual communication responsiveness, showing that this is an important quality for parents to have. This constellation of skills, comfort and confidence is consistently associated with both the occurrence and effectiveness of parent-child communication about sexual issues [9–12, 40]. The current study adds to the literature by demonstrating the importance of responsiveness when communicating about a specific sexual topic, HIV/AIDS, and by demonstrating its cross-cultural relevance. Interventions should be designed to help parents overcome barriers to discussing sexual issues with their children and to increase parents' knowledge, skills, comfort and confidence to communicate with their children

about HIV/AIDS. This can be achieved through skill-based programming that provides parents with a comfortable and safe environment in which to practice and hone their communication skills.

Research that has explored the link between socio-demographic factors and parent-child sexuality communication shows little consistency in these patterns. The current study reflected this inconsistency, with socio-demographic factors associated with HIV/AIDS communication differing between the US and Kenya. Child age and parent gender in the US sample and parent marital status and level of education in the Kenya sample were significant in the final models. These findings suggest that, although perceptions of child readiness, having gotten information to educate, and communication responsiveness relate to HIV/AIDS communication across the two cultures, the roles of demographic variables in each culture have to be taken into consideration when drawing conclusions.

The findings from this study reveal factors that influence whether early parent-child communication about HIV/AIDS occurred; however, due to the limitations of the surveys, this study did not explore the content or quality of such communication. The content of the messages parents give their children about HIV/AIDS is largely unexplored and is an important topic for future study. In addition, future research is needed in order to explore how the content of such communication influences children's sexual decision-making. Additional research on the quality of these discussions is also needed to understand how quality influences the effectiveness of communication. For example, Lefkowitz and colleagues [41] highlighted the importance of quality of communication by showing that adolescents of mothers who use an interactive versus didactic communication style had greater AIDS knowledge.

This study had several other limitations. First, the study relied on self-reported data, which may result in some bias, such as over-report of HIV/AIDS communication with children. Second, the use of parent, rather than child, reported data may also bias the results of this study. Nevertheless, we believe parent-reported data were more appropriate for the current study because it better captures parents' perceptions and is more useful for informing programs designed for parents. Third, we had a very low percentage of male caregivers in both study groups. More research is needed to determine whether male caregivers face the same barriers as females in discussing HIV/AIDS with children. Fourth, the findings are limited by the cross-sectional nature of the data. Finally, although one of the strengths of this study was the finding that the relationship and attitudinal factors associated with HIV/AIDS communication were identical across two culturally distinct populations, caution must be used when generalizing the

results to other populations because this study did not use simple random samples.

One of the first steps to creating an HIV-free generation is ensuring that youth are well-informed about HIV/AIDS. Providing sexuality education and information about sexual risk reduction prior to sexual initiation is critical, since changing established behaviors is much more difficult than developing and fostering healthy behaviors [42]. Providing age-appropriate information early can help establish patterns of safer sexual behavior among youth. Helping children in high HIV prevalence settings understand the risk of contracting HIV before they enter the risk environment is an important goal for HIV prevention. Parents have an important role to play in addressing early sexuality education needs, including communicating with their children about HIV/AIDS. Our study highlights three important and culturally cross-cutting factors that influence whether parents discuss HIV/AIDS with their children. Programs that help parents assess children's readiness to learn about sexual issues, gain access to accurate information about sexual issues, and acquire the knowledge, skill, comfort, and confidence needed to discuss sexual issues may fill a critical gap in adolescent HIV prevention efforts.

References

- UNAIDS, 2008 Report on the global AIDS epidemic. 2008 UNAIDS.
- World Health Organization Department of Child and Adolescent Health. Broadening the horizon: balancing protection and risks for adolescents. Geneva: WHO; 2002.
- World Health Organization. Helping parents in developing countries improve adolescents' health. Geneva: WHO; 2007.
- Leland NL, Barth RP. Characteristics of adolescents who have attempted to avoid HIV and who have communicated with parents about sex. *J Adolesc Res*. 1993;8(1):58–76.
- Holtzman D, Rubinson R. Parent and peer communication effects on AIDS-related behavior among US high school students. *Fam Plann Perspect*. 1995;27:235–40. & 268.
- Romer D, Stanton B, Galbraith J, Feigelman S, Black MM, Li X. Parental influence on adolescent sexual behavior in high-poverty settings. *Arch Pediatr Adolesc Med*. 1999;153:1055–62.
- Albert B. With one voice: America's adults and teens sound off about teen pregnancy. Washington DC: National Campaign to Prevent Teen Pregnancy; 2007.
- Miller KS, Levin ML, Xu X, Whitaker DJ. Patterns of condom use among adolescents: the impact of maternal-adolescent communication. *Am J Public Health*. 1998;88(10):1542–4.
- Whitaker DJ, Miller KS, May DC, Levin ML. Teenage partners' communication about sexual risk and condom use: the importance of parent-teenager discussions. *Fam Plann Perspect*. 1999;31(3):117–21.
- Kotchick BA, Dorsey S, Miller KS, Forehand R. Adolescent sexual risk-taking behavior in single-parent ethnic minority families. *J Fam Psychol*. 1999;13(1):93–102.
- Dutra R, Miller KS, Forehand R. The process and content of sexual communication with adolescents in two-parent families: associations with sexual risk-taking behavior. *AIDS Behav*. 1999;3(1):59–66.
- Miller KS, Kotchick BA, Dorsey S, Forehand R, Ham AV. Family communication about sex: what are parents saying and are their adolescents listening? *Fam Plann Perspect*. 1998;30(5):218–22.
- Fasula AS, Miller KS. African-American and Hispanic adolescents' intentions to delay first intercourse: parental communication as a buffer for sexually active peers. *J Adolesc Health*. 2006;38:193–200.
- Amuyunzu-Nyamongo M, Biddlecom AE, Ouedraogo C, Woog V. Qualitative evidence on adolescents' views of sexual and reproductive health in Sub-Saharan Africa. New York: Alan Guttmacher Institute; 2005.
- Namisi FS, Flisher AJ, Overland S, et al. Sociodemographic variations in communication on sexuality and HIV/AIDS with parents, family members and teachers among in-school adolescents: a multi-site study in Tanzania and South Africa. *Scand J Public Health*. 2008;00:1–11.
- Adegoke AA. Pubertal development and traditional support systems in Africa: an overview. *Afr J Reprod Health*. 2001;5(1):20–30.
- Pacific Institute for Women's Health. Youth sexuality: action research from Burkina Faso and Senegal. Los Angeles: Pacific Institute for Women's Health; 2002.
- Muyinda H, Kengeya J, Pool R, Whitworth J. Traditional sex counseling and STI/HIV prevention among young women in rural Uganda. *Cult Health Sex*. 2001;3(3):353–61.
- Mbugua N. Factors inhibiting educated mothers in Kenya from giving meaningful sex-education to their daughters. *Soc Sci Med*. 2007;64:1079–89.
- Fuglesang M. Lessons for life: past and present modes of sexuality education in Tanzanian society. *Soc Sci Med*. 1997;44(8):1245–54.
- Kiragu K, Obwaka E, Odallo D, Hulzen CV. Communicating about sex: adolescents and parents in Kenya. *Sex Health Exch*. 1996;3:11–13.
- Rosenthal DA, Feldman SS, Edwards D. Mum's the word: mothers' perspectives on communication about sexuality with adolescents. *J Adolesc*. 1998;21:727–43.
- Kirkman M, Rosenthal DA, Feldman SS. Talking to a tiger: fathers reveal their difficulties in communicating about sexuality with adolescents. In: Feldman SS, Rosenthal DA, editors. *Talking sexuality: parent-adolescent communication*. San Francisco: Jossey-Bass; 2002. p. 57–74.
- Jaccard J, Dittus PJ, Gordon VV. Parent-teen communication about premarital sex: factors associated with the extent of communication. *J Adolesc Res*. 2000;15(2):187–208.
- DiIorio C, Resnicow K, Dudley WN, et al. Social cognitive factors associated with mother-adolescent communication about sex. *J Health Commun*. 2000;5:41–51.
- Lehr ST, Demi AS, DiIorio C. Predictors of father-son communication about sexuality. *J Sex Res*. 2005;42(2):119–29.
- Miller KS, Whitaker DJ. Predictors of mother-adolescent discussions about condoms: implications for providers who serve youth. *Pediatrics*. 2001;108(2):e28.
- Raffaelli M, Bogenschneider K, Flood MF. Parent-teen communication about sexual topics. *J Fam Issues*. 1998;19(3):315–33.
- CDC. HIV/AIDS surveillance in adolescents and young adults (through 2006). [Slide set] 2006; Available from: <http://www.cdc.gov/hiv/topics/surveillance/resources/slides/adolescents/index.htm>.
- CDC. Youth risk behavior surveillance - United States, 2007. 2008: CDC.
- National AIDS and STI Control Programme Ministry of Health Kenya, Kenya AIDS indicator survey 2007: Preliminary report. 2008; Nairobi, Kenya.

32. Amornkul PN, Vandenhoudt H, Nasokho P, et al. HIV prevalence and associated risk factors among individuals aged 13–34 years in rural Western Kenya. *PLoS ONE*. 2009;4(7):1–11.
33. Vandenhoudt H, Amornkul PN, Odhiambo F, et al. First sexual intercourse and exposure to HIV infection among young women in a high HIV prevalence area in Western Kenya. Paper presented at: XVth International AIDS Conference; 2004; Bangkok, Thailand [abstract # LBOrc22].
34. Forehand R, Miller KS, Armistead L, Kotchick BA, Long N. The Parents Matter! program: an introduction. *J Child Fam Stud*. 2004;13(1):1–3.
35. Poulsen MN, Wyckoff SC, O'bongo C, et al. The cultural adaptation of an evidence-based family-level HIV/AIDS prevention intervention: from Parents Matter! in the US to Families Matter! in Kenya. Under review.
36. Yang H, Stanton B, Cottrel L, et al. Parental awareness of adolescent risk involvement: implications of overestimates and underestimates. *J Adolesc Health*. 2006;39:353–61.
37. Jaccard J, Dittus PJ, Gordon VV. Parent-adolescent congruency in reports of adolescent sexual behavior and in communications about sexual behavior. *Child Dev*. 1998;69(1):247–61.
38. Marhefka S, Mellins CA, Brackis-Cott E, Dolezal C, Ehrhardt AA. Perceptions of adolescents' sexual behavior among mothers living with and without HIV: does dyadic sex communication matter? *Arch Sex Behav*. 2007; 10 Jan 2008 [Epub ahead of print].
39. DiIorio C, Pluhar E, Belcher L. Parent-child communication about sexuality: a review of the literature from 1980–2002. *J HIV AIDS Prev Child Youth*. 2003;5(3):7–32.
40. Miller KS, Fasula AM, Dittus P, Wiegand RE, Wyckoff SC, McNair L. Barriers and facilitators to maternal communication with preadolescents about age-relevant sexual topics. *AIDS Behav*. 2007;13(2):365–74.
41. Lefkowitz ES, Romo LF, Corona R, Au TK, Sigman M. How Latino American and European American adolescents discuss conflicts, sexuality, and AIDS with their mothers. *Dev Psychol*. 2000;36(3):315–25.
42. Botvin GJ, Baker E, Dusenbury L, Tortu S, Botvin EM. Preventing adolescent drug abuse through a multimodal cognitive-behavioral approach: results of a 3-year study. *J Consult Clin Psychol*. 1990; 58(4):437–46.