

# Age and Economic Asymmetries in the Sexual Relationships of Adolescent Girls in Sub-Saharan Africa

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*This literature review assesses the extent of age mixing and economic transactions in the sexual relationships of adolescent girls in sub-Saharan Africa and the behavioral dynamics of girls and men involved in these partnerships. The examination of more than 45 quantitative and qualitative studies finds that relationships with older partners and those that involve economic transactions are common and that these asymmetries are associated with unsafe sexual behaviors and increased risk of HIV infection. Although the reasons that adolescent girls engage in sexual relationships with older men are varied, receipt of financial benefits is a major motivation. The literature presents evidence that girls have considerable negotiating power over certain aspects of sexual relationships with older men, including partnership formation and continuation; however, they have little control over sexual practices within partnerships, including condom use and violence. The review discusses directions for further research and the implications of current knowledge for future interventions.*  
(STUDIES IN FAMILY PLANNING 2003; 34[2]: 67–86)

Considerable attention has been focused on adolescents' sexual activity in sub-Saharan Africa and on how risky behaviors contribute to poor reproductive and sexual health outcomes, including unwanted pregnancy, abortion, violence, and infection from STDs and HIV/AIDS. A particular theme of growing concern has been the disparity in HIV infection levels between men and women in many parts of Africa, especially in adolescent age groups where many more girls than young males are infected. Age mixing in sexual relationships between older men and adolescent girls has been offered as a likely explanation for these differences, because men often have higher rates of HIV infection than do adolescent boys (Görge et al. 1993; McLean 1995; Konde-Lule et al. 1997; Matasha et al. 1998; UNAIDS 2000; Glynn et al. 2001; Laga et al. 2001; Gregson et al. 2002; Kelly et al. 2003). Relationships with older men who are sometimes referred to as "sugar daddies" reportedly involve an exchange of

money or gifts for sexual favors. These age and economic asymmetries in sexual relationships—in addition to gender-based power differences—are believed to limit adolescent girls' ability to negotiate safe sexual behaviors. Despite these common assumptions, a rigorous examination of existing empirical studies has not been undertaken heretofore to determine how widespread and risky these asymmetric relationships are and how disadvantaged adolescent girls are within them.

This article serves to fill this gap by assembling the evidence surrounding age and economic asymmetries in sexual relationships of female adolescents in sub-Saharan Africa. The review aims to answer two sets of questions: First, what is the extent of age differences and transactions in sexual partnerships, and what are the effects of these asymmetries on risk behaviors and outcomes, particularly on HIV infection and the nonuse of condoms? To answer the first set of questions, we review the quantitative evidence produced from analyses of sample surveys. Our interest in age asymmetry, or "age mixing," concerns the entire range of age differences between sexual partners, from same-age partners to much older ones. Our conception of economic asymmetry is the presence of "transactional sex," or a transfer of money or gifts from one partner in exchange for sexual relations from the other,<sup>1</sup> and we focus on transactions from male partners to females.<sup>2</sup>

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The second set of questions looks deeper into the dynamics of age mixing and transaction in sexual relationships and asks: What are the motivations for adolescent girls and older men to engage in these partnerships, and what negotiating power do adolescent girls possess in relationships where these asymmetries exist? To answer these questions, we review the qualitative evidence. Finally, we discuss research challenges in terms of how data on sexual behavior and asymmetries are collected and analyzed and their implications for interventions.

## Conceptual Framework

This review employs a conceptual framework that focuses on relative power differentials between partners, based on theories of women's empowerment (Caldwell and Caldwell 1993; Mason 1993; Malhotra and Mather 1997; Kabeer 1999). The framework recognizes that sexual activity, like other decisions negotiated between couples, is not just an individual attribute but a behavior negotiated between two partners within a wider social, cultural, and economic context. Risky behaviors, which are the proximate determinants of poor reproductive health outcomes, depend not only on the characteristics of the two individuals in the match but also on the power differentials between them. Large differentials can place the weaker partner at great risk, because he or she has relatively less power to control sexual encounters. Age and economic asymmetries are examined here as distinct types of power differentials within sexual partnerships.

Historically, age differences between marital partners have been large throughout Africa (Casterline et al. 1986; Gage and Bledsoe 1994), and economic exchange was and continues to be integral to marriage rites (Dinan 1983; Haram 1995). This traditional foundation of age and economic asymmetries has new implications in the era of HIV/AIDS. Women's increasing dependence on men's economic support throughout much of the region over the last century (Caldwell et al. 1993) has meant that women's personal resources, including their sexuality, have newfound economic potential. Pre- and extramarital sexual encounters increasingly involve the transfer of material resources, such as money and gifts, from a man to his female partner (Dinan 1983; Vos 1994). This development has been labeled by some as the "commoditization" or "commercialization" of sexual relations, and ranges from commercial sex to more informal transactions between individual partners (Haram 1995; Bohmer and Kirumira 1997; Webb 1997). Thus, what is being exchanged and between whom has been recently modified: Cash and gifts have increasingly en-

tered into informal sexual relations, and the negotiating parties are more likely individual men and young females than parents and families.

Within this conceptual framework, age and economic asymmetries within a couple are reinforced by various contextual factors, such as family and peer pressures, social and economic institutions, and the overall context of gender-based inequality. For example, social norms in many sub-Saharan African contexts permit (and even encourage) men to engage in sex with multiple partners, favor sex with younger partners, and dominate sexual decisionmaking (Caldwell et al. 1993; Preston-Whyte 1994; Adepoju and Mbugua 1997; Fuglesang 1997; Webb 1997; Gage 1998; Hof and Richters 1999; MacPhail and Campbell 2001). Moreover, economic realities enable men to monopolize the sources of income and give older men more social and economic power than younger men (Gage and Bledsoe 1994; Laga et al. 2001).

In addition to these contextual factors and asymmetries, our conceptual framework suggests that adolescent girls as individuals are at an exceptional disadvantage when negotiating sexual relations with older men for several important reasons. First, the economic value of their sexuality is particularly pronounced for adolescent girls, who have fewer market opportunities than older women and less access than boys to pocket money from parents (Bohmer and Kirumira 1997; Webb 1997). Second, population growth and economic conditions have produced a partner squeeze in many African settings, where older, economically secure men are at a shortage and younger women are in great supply (Vos 1994; Görden et al. 1998). Thus, girls and young women may find it harder to negotiate the terms of sexual relationships with older partners because the availability of substitute female partners is so great. Third, traditional methods of sexuality education in Africa have substantially weakened (Webb 1997; Gage 1998), and the resulting void of information about reproduction and relations with the opposite sex has not been replaced by formal education or by "systematic instruction from reliable adults" (Fuglesang 1997:1,249), whether from parents, elders, teachers, or others. Many observers believe that this void has been filled by peers as the most important source of knowledge and influence on sexuality (Gage 1998). Unfortunately, peer knowledge is believed to be misguided and inaccurate (Akuffo 1987; Bohmer and Kirumira 1997; Fuglesang 1997; Webb 1997; Nyanzi et al. 2000). Furthermore, adolescents' peers emphasize status and material goods, and they mimic adult norms of sexual behavior (Hughes and McCauley 1998). These realities leave girls ignorant of their bodies and of sexual

processes while leading them to value sexual relationships that confer status and financial rewards.

## Methodology

The methods used to collect information for this review were threefold: First, a literature search for published studies was conducted through population, medical, and social science databases for papers referencing age differences and economic transaction in sexual partnerships, and among adolescent girls in Africa in particular. Second, numerous authors of such studies were contacted to inquire about further work they had completed or citations of other work they could identify, and references were combed for other studies that could be included. Third, searches for unpublished papers and reports were conducted by means of the websites of international nongovernmental and for-profit organizations involved in research on adolescents in sub-Saharan Africa. This process yielded more than 45 studies that include information on the prevalence of, or circumstances surrounding, age mixing in sexual partnerships and economic exchange between adolescent girls and older men. Although the search was not meant to cover a particular time period, the focus of most studies was on sexual behavior in the era of HIV/AIDS, and therefore most studies pertain to the late 1980s onward.

Age ranges that constitute adolescence vary, and most of the studies reviewed here pertain to those aged 15 to 19. Some studies included girls as young as ten and women as old as 29. Terminology also varies: In this article the terms "girls" or "adolescent girls" are used throughout, and the distinction "young women" has been given to those in their early 20s. Moreover, many of the studies selected specific categories of adolescents in their research projects, such as those who are in school and out of school or those who presented for induced abortions at hospitals. Many of those studies illuminate the situations of adolescents in specific contexts and are not meant to represent the experience of all adolescents in a given region or country.

## Age and Economic Asymmetries and Reproductive Outcomes

More than 15 studies were located that report statistics on age mixing in adolescent girls' sexual relationships. Despite this sizable number, making detailed comparisons across studies is difficult because of variations in

study populations and sites, age ranges of respondents, and the types of statistics reported. Therefore, general conclusions are offered here, and readers are advised to refer to the individual study statistics presented in Appendix Tables A1 and A2 for more detail.

No standard age difference between partners or summary statistic on age mixing is routinely reported, although most indicators are usually reported in the aggregate as means or proportions.<sup>3</sup> One common indicator, the mean age of girls' partners, offers a single measure of average experience for an age group of girls. The mean age of current male partners varies between two and seven years older in the studies reviewed (Kekovole et al. 1997; Görgen et al. 1998; Gregson et al. 2002). This indicator offers no information about the age distribution of older partners, and the presence of a few very old partners can easily drive the mean upward. Therefore, a more useful measure for assessing the prevalence of older partners is the proportion of girls' partners who are older.

With respect to the pool of girls' sexual partnerships examined in the research, large age differences between partners are fairly common. Several studies reveal that between 27 and 50 percent of adolescent girls' partners are at least six years older (Kekovole et al. 1997; Konde-Lule et al. 1997; Gregson et al. 2002; Kelly et al. 2003), and several report that between 12 and 25 percent are more than ten years older (Laga et al. 2001; Gregson et al. 2002; Kelly et al. 2003; Lydié et al. forthcoming). Few girls appear to have partners of the same age and very few have ones who are younger (Calvès and Meekers 1997; Konde-Lule et al. 1997; Kelly et al. 2003). Moreover, many adolescent girls' older partners are men who are married to other women (Calvès et al. 1996; Rasch 2000; Silberschmidt and Rasch 2001).

Large age differences between partners appear among select groups of adolescent girls. Several studies have investigated the circumstances of girls who have presented for induced abortions, and their partners are much older, on average, than those of girls described in studies of representative samples of adolescents. Research undertaken in Dar es Salaam, Tanzania, finds that approximately three-fourths of these girls' partners (most often the partner responsible for the pregnancy) are more than ten years older and more than one-fourth are in their 40s—the latter statistic revealing age differences of at least 20 years (Mpangile et al. 1993; Rasch et al. 2000; Silberschmidt and Rasch 2001).

The data also appear to support the finding that, as adolescent girls mature, the age difference between them and their partners increases. This result is arrived at by comparing two types of statistics. First, a comparison of the ages of current sexual partners and partners at

first sexual experience finds that current partners display greater age differences (Kekovole et al. 1997). The second method of finding an age effect is by comparing partners' ages for older and younger cohorts of females from the same study population. Two studies find that older girls' partnerships involve larger age differences than those of younger girls (Görge et al. 1998; Kelly et al. 2003), whereas another study (Gregson et al. 2002) finds smaller age differences for the older cohort.<sup>4</sup>

Finally, age mixing is examined using data drawn from surveys of male sexual behavior. Several studies survey men in the 15–50 age range, and find that adolescent girls younger than 20 constitute large proportions of men's nonmarital partners, ranging from 31 percent to 66 percent (Orubuloye et al. 1992; Morris et al. 2000; Glynn et al. 2001; Luke 2002). These populations include adolescent males, and once the samples are restricted to men aged 25 and older, far fewer of men's partners are adolescent girls (Glynn et al. 2001). Two studies find that the partners of specific groups of men who engage in high-risk behaviors, such as those defined as travelers or those involved in economic transactions, are highly likely to be adolescent girls, approximating one-half of such men's recent sexual partners (Morris et al. 2000; Luke 2002).

Overall, evidence from the review indicates that engaging in sexual relations with older partners is the norm for adolescent girls in sub-Saharan Africa. Large age differences between partners are not uncommon, although in the majority of girls' relationships, the age differences between partners appear to be only a few years. Moreover, probable links are discernible between greater age asymmetries and abortion and unsafe behaviors.

Figures on the prevalence of engaging in transactional sex are also varied, depending on the age group of adolescent girls considered, on the sample populations, and on the phrasing of questions. Most survey questions ask about receiving or exchanging money or gifts for sex, although the exact wording is not always noted. Detailed questions about the amount or type of gifts as well as the context of the exchange are not usually included in surveys (for an exception, see Luke 2002). Therefore, making a distinction between transactions that may be an expected part of dating relationships and those that are inducements for sexual services and that may involve a greater degree of coercion is difficult.

In general, the exchange of money or gifts for sex appears to be common in relationships involving adolescent girls. Readers may refer to Appendix Table A3 for details of statistics from the 11 studies reviewed. Most indicators refer to ever involvement in transactional sexual relations, and the figures range from small

percentages to large majorities, 5 to 80 percent of girls interviewed. Figures referring to recent involvement in transactional sex from a review of DHS studies range from 13–38 percent (PRB 2001). Specific groups of girls and young women appear to be more likely than others to engage in transactional sex, including secondary-school students, girls hawking at truck stops, and working-class girls (Nzyuko et al. 1997; Machel 2001; Nyanzi et al. 2000).

Some statistics on transactional sex use all adolescent girls as the reference population. Restricting the population to girls who are sexually active and who have been exposed to the possibility of transaction would increase the proportions engaging in economic exchange. Furthermore, most of the studies report on adolescent girls who have ever been involved in material exchange in any of their relationships, and we have scant information on the proportion of all partnerships that involve a transaction. For example, girls may have numerous past or current partnerships that have not involved a transaction and only one that has included economic exchange. One survey in Rakai, Uganda (Konde-Lule et al. 1997), however, asked girls about their three most recent partnerships and found that a large majority—90 percent—involved economic support.

The evidence appears to validate the concept that “sugar daddy” relationships are widespread, although the link between older partners and transactional sex has not been firmly established by the quantitative data. The studies reviewed here do not reveal the age of the partner with whom transactional sex was undertaken, although many observers assume that a large share involves older partners who are more likely than adolescent boys to be employed and have access to monetary resources (Nnko and Pool 1997; Webb 1997). Transactional sex is linked specifically to relationships with older men in qualitative studies (McLean 1995; Nnko and Pool 1997; Hulton et al. 2000; Rasch et al. 2000). Exchange occurs within same-age adolescent relationships as well (Kaufman and Stavrou 2002).

### *Asymmetries and Their Association with Unsafe Behaviors and HIV Risk*

Seven studies examined the statistical associations between age and economic asymmetries and unsafe sexual behaviors and HIV infection. An overview of the findings is presented in Table 1, and details are given in Appendix Table A4. This limited initial evidence is mixed, but generally points to the negative implications of age and economic asymmetries.

**Table 1** Statistical associations between sexual partnerships involving age differences and transactional sex and HIV infection and sexual behaviors, sub-Saharan Africa

Outcome/risk group*	Direction of effect and number of studies with finding		
	In-creased	De-creased	No effect
<b>HIV infection</b>			
Young females with older partners	2	—	1
Females with older partners	—	—	1
Married young females with older husbands	2	—	—
Unmarried females with oldest-aged partners	—	—	1
Young males with younger partners	1	—	2
<b>HIV infection in last year</b>			
Young females with older partners	—	—	1
Females with older partners	—	1	—
<b>Sexual behaviors</b>			
<b>Use of condoms</b>			
Females with older partners	—	1	—
Males with younger partners	—	1	1
Males giving more in transactions	—	1	—
Males with younger partners who gave any amount in transactions	—	1	—
<b>Discussion of condom use</b>			
Females with older partners	—	—	1
Males with younger partners	—	—	1
<b>Discussion of HIV</b>			
Females with older partners	—	1	—
<b>Suggestion of condom use</b>			
Females with older partners	—	—	1

— = Not applicable.

**Note:** See Appendix Table A3 for further details on individual statistics, types of partnerships, and study populations.

\*All age categories relative to those with partners of similar ages. Young females and young males include adolescents and young people aged about 15–24; females and males include reproductive-age groups, approximately aged 20–45. Unless otherwise noted, category includes married and unmarried individuals.

Three separate studies find significant associations between greater age differences between adolescent girls and their recent partners, including husbands, and increased risk of HIV infection (see Glynn et al. 2001, for married adolescents; Gregson et al. 2002; and Kelly et al. 2003). Two studies find no effect (see Lydié et al. forthcoming; Glynn et al. 2001, for unmarried adolescents). With respect to greater age differences between young males and their younger partners, one study finds a significant relationship, whereas another finds no effect (Gregson et al. 2002; Lydié et al. forthcoming). These results suggest that relationships involving older partners of adolescent girls may be particularly risky for infection and that those involving young boys with young partners may not be as risky. One study tested for a relationship between HIV incidence and age differences and found no effect among young women aged 17–24, but HIV incidence declined significantly among women aged 25–29 (Kelly et al. 2003). The authors explain that

this surprising finding may reflect the circumstance that women in partnerships involving large age differences who remain uninfected throughout adolescence and young adulthood are less likely to seroconvert for unknown biological or behavioral reasons.

In addition to these analyses of age asymmetry and HIV infection, three studies investigate the relationship between greater age differences and unsafe behaviors, including nonuse of condoms and lack of discussion of HIV and condom use. None of the studies focuses explicitly on adolescent age groups, but nevertheless, the findings have implications for HIV risk among adolescent girls and young women who are part of the samples or who are partners of men in the samples.

Overall, the evidence indicates that significant associations exist between larger age differences between partners and economic transactions and unsafe sexual behaviors. Condom use and discussion of HIV significantly decreased in partnerships with larger age differences in most of the analyses (Blanc and Wolff 2001; Luke 2002; Jewkes et al. 2003), whereas age difference had no effect on the discussion and suggestion of condom use (Blanc and Wolff 2001; Jewkes et al. 2003). One study also identified partnerships that contained both age and economic asymmetries and found a decreased likelihood of condom use, compared with relationships that had no such asymmetries (Luke 2002). That study also found a significant association between increased amounts in economic transactions and the nonuse of condoms. Further analyses should be undertaken restricting the samples to adolescents and young people in order to isolate the effects for these age groups. Moreover, other outcomes, including violence, pregnancy, abortion, and contraceptive use should be examined as well for their links to age and economic asymmetries.

## Motivations for Age Mixing and Economic Transactions in Sexual Relations

We now turn to the qualitative research to explore partnership dynamics in greater detail and to answer the question of why so many adolescent girls and older men enter into asymmetric relationships when they are associated with increased risk, and to uncover to what extent girls are powerless within them.

### *Adolescent Girls' Motivations*

The literature reveals that adolescent girls' motivations for engaging in relationships with older partners are var-

ied and often intertwined. Numerous studies find that many girls choose older male partners in order to find love and, eventually, a spouse (Komba-Malekela and Liljestrom 1994; Weiss et al. 1996). Older men are marriageable: They are perceived as more secure economically, more serious about marriage, and more likely to marry or support a girl if she becomes pregnant unintentionally (Komba-Malekela and Liljestrom 1994; Haram 1995; Meekers and Calvès 1997b; Nnko and Pool 1997; Görden et al. 1998; Nyanzi et al. 2000). Pregnancy may also be a strategy that girls use to persuade their partners to marry them (Calvès et al. 1996; Rasch et al. 2000; Gregson et al. 2002).<sup>5</sup> In addition, parents often pressure girls to form relationships with older, established partners that may lead to marriage or at least into a situation where the partner can support their daughter if she becomes pregnant (Gage 1998). Several studies find that parents warn daughters not to bear a poor boy's child (Görden et al. 1993; Görden et al. 1998). Parents may also disapprove of girls' relationships with older men, especially if the man is not interested in marriage (McLean 1995; Longfield et al. 2002).

In contrast, research from a number of settings reveals that adolescent girls do not always love their older partners and may have no intention of marrying them, or they may know that their partners are not interested in marriage (Dinan 1983; Akuffo 1987; Meekers and Calvès 1997a; Silberschmidt and Rasch 2001). These girls prefer partners closer to their own age as they seek to fulfill desires for love, affection, and eventual marriage (Nnko and Pool 1997; Görden et al. 1998; Temin et al. 1999; Silberschmidt and Rasch 2001). For example, several studies report that girls have older partners for material benefits and simultaneously have younger or "main" boyfriends who represent more serious relationships that may lead to marriage (Meekers and Calvès 1997a; Gregson et al. 2002).

Most of the studies uncovered financial benefits as major motivations for girls to engage in sexual relations with older partners. Although varied and complex, these benefits can be divided into three primary categories: (1) assistance with economic survival; (2) a way to secure longer-term opportunities; and (3) a means of increasing status among one's peers.

With respect to economic survival, evidence from several studies indicates that many girls use resources from older men for basic needs or in times of economic crisis (Calvès et al. 1996; Feldman et al. 1997; Hof and Richters 1999; MacPhail and Campbell 2001; Kaufman and Stavrou 2002). For example, young mothers may be particularly vulnerable or parents may pressure their daughters directly to enter into relationships with older,

well-off men because they need assistance from their children (Komba-Malekela and Liljestrom 1994; Gage 1998; Silberschmidt and Rasch 2001).

The findings of numerous studies suggest that adolescent girls are motivated to secure opportunities and enhance long-term goals of achieving higher economic status and stability through their involvement with older partners. Much of the evidence describes the situations of female secondary-school students who need the financial support of older men to stay in school and pay for school necessities, such as fees and supplies (Akuffo 1987; Caldwell et al. 1989; Orubuloye et al. 1992; Ulin 1992; Meekers and Calvès 1997a and 1997b; Calvès 1999; Weiss et al. 1996; Nyanzi et al. 2000; Machel 2001; Kaufman and Stavrou 2002). Similar financial constraints appear to affect university students, and older partners help pay for tuition, living expenses, university housing, clothes, and food (Abang 1996; Calvès et al. 1996; Kaufman and Stavrou 2002). Another segment of the literature studies the lives of educated single young women who enter into relationships with much older wealthy men to help achieve their goals of financial security and social mobility. Their partners help them meet influential people and establish them in an occupation or career (Dinan 1983; Orubuloye et al. 1992; Calvès et al. 1996; Meekers and Calvès 1997a and 1997b; Gage 1998; Taffa et al. 1999).

Older partners help girls achieve the goal of increasing their status among peers in two ways. First, older partners help fulfill the expectation that girls will have boyfriends and be sexually active (Wood et al. 1998). Second, older men can provide girls with money and gifts for luxuries, such as nice clothes, soap, makeup, perfume, jewelry, and modern hairstyles, items that parents are often unable or unwilling to pay for (Akuffo 1987; Görden et al. 1993; Calvès et al. 1996; Meekers and Calvès 1997a; Nyanzi et al. 2000; Rasch et al. 2000; Machel 2001; Silberschmidt and Rasch 2001; Longfield et al. 2002). These things help girls enjoy an upscale lifestyle and look "modern" (Akuffo 1987; Haram 1995; Calvès and Meekers 1997; Meekers and Calvès 1997a; Gage 1998).

The literature suggests that financial rewards are reaped more successfully by older than by younger adolescent girls who are inexperienced in exchange negotiations. Fuglesang (1997:1,252) reports that girls in Tanzania, aged 10–11, were "lured into sexual relations with older men for 'chips,' Coca-Cola, transport to school, money for videos or just extra little things."

Evidence from the review points to the conclusion that transactional relations have become common in many places in Africa and that girls expect to receive some sort of payment for sex (Webb 1997; Silberschmidt

and Rasch 2001). Gifts have become a symbol of the girl's worth and a man's interest, and girls feel offended if they do not receive something in return for sex. A study in Burkina Faso concluded: "Receiving gifts or money in exchange for sexual favors is considered unremarkable. A girl would feel humiliated and disrespected if she received nothing for engaging in sex" (Görgen et al. 1993: 290) (see also Caldwell et al. 1989). Interestingly, none of the adolescents in the studies reviewed associated these examples of economic exchange with prostitution, a socially unacceptable activity in their eyes (Komba-Malekela and Liljestrom 1994; Webb 1997; Rasch et al. 2000; Silberschmidt and Rasch 2001; Kaufman and Stavrou 2002). Moreover, gifts are not given and accepted on every date or at every sexual encounter, a circumstance that may strengthen the view that these exchanges do not constitute prostitution.

The literature suggests that there is a wider occurrence of transactional sexual relationships for the purposes of fulfilling adolescent desires for status and gifts than for securing basic needs due to extreme poverty. Many girls and young women do not appear to need the financial support of older men as a full source of income; educated young women are often already employed, and adolescents' parents support them, for the most part. This compilation of results from qualitative studies, however, does not enable us to determine the true proportion of transactions that are triggered by poverty. The impression that most transactional sex is for status purposes may have stemmed from the responses of the specific samples of girls interviewed. For example, many of the studies focus on populations of girls of middle to higher levels of economic status, such as schoolgirls, whose families most likely can pay their school fees. Such girls would not likely be motivated to engage in transactional sexual relations as a result of their poor economic circumstances.

The review of the quantitative evidence found that age and economic asymmetries are significantly associated with unsafe behaviors and with HIV infection. Some of the qualitative evidence suggests that adolescent girls may not be aware of this reality or act upon it, however (Longfield et al. 2002). Little research exists that investigates what adolescent girls know about such asymmetric relationships and how they weigh the risks and benefits of partnerships with older men (see Görgen et al. 1998).

### *Men's Motivations*

The literature recounts the motivations of older men to

engage in sexual partnerships with adolescent girls and young women, including regular access to sex, enhancement of prestige, domestic help, and maintenance of health. Studies suggest that African men feel it is a "natural right" to have multiple partners, and men prefer younger women, often students, as nonmarital partners (Barker and Rich 1992; Orubuloye et al. 1992; Longfield et al. 2002). The ability to attract young partners inflates male self-esteem and demonstrates that men are able to "conquer" women (Dinan 1983; Preston-Whyte 1994; Haram 1995; Fuglesang 1997; Silberschmidt and Rasch 2001). Men reap other benefits from having younger partners; in particular, they obtain domestic help, if they are not married or cohabiting (Wood et al. 1998).

From qualitative studies, evidence abounds that, as men become more aware of the dangers of AIDS, increasingly they seek out younger partners, often schoolgirls, in the belief that young girls are unlikely to be infected with HIV (Ulin 1992; Caldwell and Caldwell 1993; Orubuloye et al. 1993; Weiss et al. 1996; Bohmer and Kirumira 1997; Nyanzi et al. 2000; Rasch et al. 2000; Silberschmidt and Rasch 2001). The idea of forming a relationship with a clean young woman replicates a traditional belief, in many areas of Africa and elsewhere, that having sexual intercourse with a virgin will rid a man of infection, including STDs or AIDS (Gage 1998; Jewkes et al. 2003). Nevertheless, in some African contexts, adolescent girls are more likely to be infected than females in other age groups.

Among strategies used to attract young partners, some men promise love, marriage, or gifts, and many men appear to understand and accept that a transaction is to be expected in sexual relations (Görgen et al. 1998). On the whole, however, men appear to be unconcerned with reproductive health risks to themselves or their partners. Their lack of concern may be due to feelings of fatalism or predestination that have been offered as explanations for seemingly irrational behavior with regard to HIV/AIDS transmission in Africa (Caldwell 2000; Gersovitz 2000). Often, girls' older partners may not initiate or accept condom or contraceptive use and "argue that there is no risk involved in having sexual relations or that pregnancy poses no severe problems" (Görgen et al. 1993: 290) (see also MacPhail and Campbell 2001). Numerous studies also find that if their young partners become pregnant, many men do not agree to paternity, that they subsequently sever relations, and that they do not support their partners' decisions to seek an abortion or rear children (Dinan 1983; Akuffo 1987; Fuglesang 1997; Webb 1997; Wood et al. 1998; Rasch et al. 2000; Silberschmidt and Rasch 2001).

## Girls' Negotiating Power

Power differentials between sexual partners can be played out in various aspects of sexual negotiation. The qualitative evidence reveals various aspects of sexual bargaining—some in situations where adolescent girls have the power to achieve their preferences, and some where they have relatively little control.

Adolescent girls appear to have a high degree of control over partnership formation. To a great extent, girls are able to choose the numbers and types of partners with whom they are involved and, often, the onset of sexual relations. For example, several studies find that girls often deceive boys and men by offering “false promises” that delay sexual relations. Delaying the onset of the relationship allows girls to increase the chance of receiving money and to maximize the amount, assess the man’s character, and get rid of men or boys they do not like (Komba-Malekela and Liljestrom 1994; Nnko and Pool 1997). A study in Uganda among secondary school students recounted explicit descriptions of girls’ negotiating strategies, including the practice of “detoothing,” whereby girls milk as much money as possible out of their partners without giving sexual favors in return (Nyanzi et al. 2000). Because older partners are wealthier and try to flaunt it, they are usually the focus of the detoothing. Some girls admitted that after receiving their gift, they hid, disappeared, evaded the man, or became disinterested and cold “so that they did not have to give the expected ‘goods’” in return (Nyanzi et al. 2000:89).

A second aspect of sexual relations over which girls have considerable control is the duration of a relationship. Many adolescent girls in the studies reviewed describe how they could terminate a sexual relationship or refuse sex, particularly if they did not continue to receive gifts (Dinan 1983; Haram 1995; Nyanzi et al. 2000; Silberschmidt and Rasch 2001). “No money, no sex” was a recurring remark (Komba-Malekela and Liljestrom 1994; Silberschmidt and Rasch 2001). Even in cases where girls say they are in love with their partners or do not need the money, they still insist on gifts if the relationship is to continue. Apparently, adolescent girls do not wish to cease all relationships, however; when they lose or drop one partner, they readily substitute another who offers similar or greater rewards.

The research also suggests that adolescent girls have some degree of control over pregnancy, paternity, and abortion decisions. Pregnancy can be a card that girls play to continue a relationship and receive further financial support from a partner (Obbo 1995; Calvès et al. 1996); as a result, they are not motivated to use condoms.<sup>6</sup> Young, unwed mothers may hold a better-off boyfriend

responsible for a pregnancy even if he is not the biological father, because he is better able to support the child or pay for an abortion (Preston-Whyte 1994; Calvès et al. 1996; Silberschmidt and Rasch 2001).

## *Girls' Lack of Power to Negotiate*

Although girls appear to have control over establishing and terminating sexual relationships, this review finds that older men have a great degree of bargaining power within sexual partnerships, particularly once girls have used their own power to negotiate the formation of the relationship. Most adolescent girls seem to have little power to discuss or negotiate safe sex practices, specifically condom use and sexual activities, or to control violence in a relationship (Hof and Richters 1999).

The link between economic transaction and sexual activity described in the literature suggests that most adolescent girls are obligated to have sex with men who offer gifts and are less likely to suggest condom use with these partners (Komba-Malekela and Liljestrom 1994; Görgen et al. 1998; Kaufman and Stavrou 2002). The type and value of the gift appears to be connected to sexual activity, according to a qualitative study conducted in South Africa (Kaufman and Stavrou 2002), whereas other studies indicate that the value of the gift is not crucial, and that even minor gifts, such as a soda or transport, are enough to induce girls to have sex or disregard the use of condoms (Komba-Malekela and Liljestrom 1994; Fuglesang 1997). Adolescent girls cannot often insist on safe sex practices, because doing so jeopardizes their goals for the relationship. They fear losing their partners and the associated financial support, as well as losing status and the prospect of marriage (Hof and Richters 1999; Rasch et al. 2000; Machel 2001; Silberschmidt and Rasch 2001; Gregson et al. 2002).

Sexual or physical violence appears to be a relatively frequent male response to younger partners who overstep the bounds of their bargaining power. Numerous studies conclude that assertive actions on the part of girls—such as rejecting sexual advances, suggesting condom use, attracting multiple partners, or attempting to discuss sexual matters—can bring about negative reactions from their male partners, including physical violence and rape (Preston-Whyte 1994; Wood et al. 1998; Hof and Richters 1999; Machel 2001; MacPhail and Campbell 2001; Kaufman and Stavrou 2002). Evidence also suggests that violence is an active male strategy to forego the rules of negotiating sexual relations altogether. The research offers numerous examples of older partners, such as teachers and relatives, and peers (and



sometimes groups of peers) who forced girls to have sex (Mpangile et al. 1993; Komba-Malekela and Liljestrom 1994; Bohmer and Kirumira 1997; Gage 1998; Wood et al. 1998; Hulton et al. 2000; Nyanzi et al. 2000; MacPhail and Campbell 2001). Threats or use of violence may also compel girls to remain in relationships that they would otherwise terminate (Wood et al. 1998).

Evidence reveals that male violence has become socially sanctioned by the community (Bohmer and Kirumira 1997). In the study of detothing in Uganda, all adolescents—even the girls—think that rape is justifiable in cases of detothing (Nyanzi et al. 2000). Moreover, a study conducted in South Africa reveals that some girls perceive violence as a partner's expression of love or interest (Wood et al. 1998).

## Research Challenges and Implications for Interventions

One methodological issue uncovered in the review is that many studies attribute unsafe behaviors and HIV infection directly to age mixing or economic transaction and fail to account for the possible self-selection of individuals into asymmetrical relationships. This causal relationship is proposed in the conceptual framework used here, by which large age differences and transactional sex are types of power differentials that lead to or cause unsafe behaviors and infection. However, certain girls (who are independently more likely to engage in risky behaviors and experience poor health outcomes) may also be more likely to select older partners or engage in transactional sex. Large age differences or economic transaction in these cases merely serve as proxies for individual characteristics that are not measured and that contribute to higher levels of infection.<sup>7</sup>

The selection issue has implications for policies and programs. If marital or nonmarital relationships with older partners or transactional sex have a causal effect on unsafe behaviors and poor reproductive health outcomes, efforts might be targeted at rectifying the power imbalance within them or at discouraging these relationships. For example, recommendations may include increasing girls' access to education, employment, and information; increasing their communication and negotiating skills; and launching social campaigns to discuss and debate norms that bolster male power (Görge et al. 1993; Preston-Whyte 1994; Weiss et al. 1996; Bohmer and Kirumira 1997; UNAIDS 2000; Laga et al. 2001; Clark 2002; Longfield et al. 2002). If age and economic asymmetries are proxies for individuals who display risky behaviors more generally, however, then the focus may

be placed more usefully on the individual rather than on the relationship.

Finding a solution to the selection problem and finding a causal relationship between asymmetry and unsafe behaviors or infection are challenging statistical problems. One way to test for a true age-difference or transaction effect is to analyze data concerning multiple partnerships for the same individual. With this information, fixed-effects analysis can be used to purge unobserved characteristics that are common to all partnerships for the same individual and rule out the possibility that certain individuals who engage in unsafe behaviors are self-selected into such relationships.<sup>8</sup>

In order to implement this analytic strategy, data on multiple partnerships is used. A major drawback to many of the quantitative analyses reviewed here, however, is that they use information about a single, nonrepresentative sexual partner, usually the most recent partner only. If the type of sexual partner with whom an individual is involved changes as the person ages, the relationship with most recent partner is not representative of the individual's behavior with his or her past partners, a situation that most likely applies to most individuals. As noted above, for example, this review has shown that the age difference between partners is likely to increase as adolescent girls mature. Another problem with using only data concerning the most recent partner is that greater emphasis is placed on partners with whom an individual most frequently has sexual intercourse (Gregson et al. 2002). If most frequent sex occurs with relatively unsafe partners, such as an infected husband, then the findings might overstate the level of risk within all partnerships.

A related problem is that many researchers apparently assume that people—especially adolescents—have only one current partner and therefore, they often fail to inquire about multiple partnerships (see Kekovole et al. 1997; Görge et al. 1998; Rasch et al. 2000; Silberschmidt and Rasch 2001). Numerous studies reveal that adolescents may have simultaneous or successive recent partnerships (for example, see Nzyuko et al. 1997; Karim et al. 2003; and Lydié et al. forthcoming) and that they may maintain these relationships with different sorts of partners, including older men and men of their own age. If information about only one partner is elicited, adolescent girls may be inclined to report acceptable same-age partners and underreport more risky relationships with older partners.<sup>9</sup>

Information about a range of sexual partnerships for each individual is necessary not only to help solve issues of self-selection but also to lend greater power to analyses attempting to isolate the kinds of partnerships

responsible for poor reproductive health outcomes. Many of the studies reviewed here collected information about multiple partnerships, including data about all partners in the last year or about the three, five, or eight most recent partners, and these datasets could be analyzed further using this information. Researchers should also collect information about sexual behaviors among marital as well as nonmarital partners, and surveys could incorporate more in-depth interviews and participatory measures to elicit valid and reliable responses to sensitive questions about sexual behavior, especially from adolescents.

### *Asymmetry and Risk*

Another methodological issue raised by the quantitative findings is the nature of the relationship between asymmetry and risk, or whether there is a linear or nonlinear effect of increasing age difference on HIV infection or the presence of unsafe sexual behaviors. Acquiring such information helps us to determine what age disparity or amount of economic transaction constitutes elevated risk. For example, several studies test for a linear relationship, which means that for each additional year in age difference or increase in amount of transaction between partners, the effect on HIV infection or risk behaviors is the same (Glynn et al. 2001; Gregson et al. 2002; Luke 2002; Jewkes et al. 2003; Lydié et al. forthcoming). These findings suggest that even small age differences have significant risk associated with them. A nonlinear effect may exist, however, such as an exponential relationship whereby no effect exists for smaller age differences, say two to four years. Once the age difference increases beyond that level, there could be a steep rise in the effect. If such is the case, interventions should concentrate on partnerships with the greatest age differences, because they have disproportionately high risk. Of the two studies that test for nonlinearity, one found that risk of HIV infection rose sharply above a threshold of ten years' age difference (Kelly et al. 2003), whereas the other found that condom use decreases significantly at five years' age difference, with a less substantial drop in condom use in partnerships of ten or more years' difference (Blanc and Wolff 2001).<sup>10</sup> Age differences greater than ten years have been highlighted as potentially increasing girls' vulnerability to HIV in a UNAIDS program indicator (UNAIDS 2000). Nevertheless, a definitive threshold that constitutes elevated risk has not yet emerged from the limited work in this area. Researchers should continue to test and report findings about linear and nonlinear effects that can help identify

the relationship between asymmetry and risk more specifically and determine if the relationship holds in various contexts.

### *Enhancing Qualitative Methods*

Qualitative research can illuminate aspects of sexual decisionmaking that cannot be easily gleaned from survey research; this review uncovered various such aspects relating to age mixing and transaction. Room exists, nevertheless, for additional qualitative work on how adolescents—and older men—assess the risks and benefits of their relationships and how and why some girls are able to resist various levels of negative influences, including their partners' domination of sexual decisionmaking, peer and parental pressures, and inequitable gender norms (Görge et al. 1993; Fuglesang 1997; Wood et al. 1998).

On the whole, the studies reviewed here appear to rely on focus-group methodology rather than on individual interviews for the purpose of gathering detailed information on the sexual experiences of adolescents. Focus-group participants were often selected by researchers or by community members because they were thought to be the most knowledgeable about adolescents in the area. Their responses may yield general perceptions or anecdotal evidence of age mixing or transactional sex (often about other adolescents' experiences), and they may be biased by local normative beliefs about such behavior (for example, see Barker and Rich 1992; Nnko and Pool 1997; Temin et al. 1999). This method may provide limited evidence of adolescents' own behaviors, particularly about their nonconsensual experiences. Several of the studies reviewed have developed or employed innovative methods, however, including role plays, narratives, and repeated focus groups. These methods enabled researchers to collect apparently valid and reliable details of adolescents' sexual experiences (for example, Bohmer and Kirumira 1997; Nyanzi et al. 2000). The methods were time and labor intensive, but they were successful at building trust among participants, which is key to ensuring that adolescents feel free to discuss sensitive topics (Bohmer and Kirumira 1997).

### *The Meaning and Measurement of Transaction*

Transaction is conceptualized here as a distinct type of power differential between sexual partners, and studies using both qualitative and quantitative research methods have demonstrated that economic exchange is associated with unsafe behaviors. Nevertheless, not all

gifts and gift giving are related to sexual relations or to coercion. For example, some observers believe that dating and its accompanying exchanges, particularly among adolescents of the same age, may not be harmful at all (see Kaufman and Stavrou 2002). Moreover, not all types of transaction appear to be reported in surveys, and many observers conclude that the figures reported are underestimates. Survey questions usually inquire if money or gifts and sometimes favors or presents have been exchanged. Respondents may not regard some items, such as lifts to school, sodas, meals, or rent payment as "gifts," and therefore will not report them as such. Transactions involving sexual activities are viewed as prostitution in many settings, and therefore, questions about "exchange" may lead girls and their older partners to underreport these behaviors.

Future research should commence with a broad definition of exchange and data should be gathered on a wide range of transactions in order to separate the variations according to context, meaning, and connection to coercion.<sup>11</sup> With respect to interventions, we have seen that transactions are commonplace and often expected within sexual relationships, and thus eliminating specific sorts of exchanges may be difficult. A more successful strategy may be to enhance adolescent girls' communication skills about the "expectations and intentions symbolized in a gift" (Kaufman and Stavrou 2002:22) to empower them to recognize and prevent unsafe encounters.

### *Active and Passive Interpretations*

The literature reviewed for this article reveals two portrayals of adolescent girls and their sexual experiences that focus on various aspects of the conceptual framework and reflect how study results are interpreted. First, much of the literature depicts adolescent girls as passive victims of the wider structural and cultural factors that shape their risky sexual behaviors. This viewpoint underscores how girls can be coerced into unsafe behaviors by the contextual influences in the framework, while they lack the knowledge and ability to assess the poten-

tial consequences of these behaviors. The various levels of contextual influences, including peer and parental pressures and the overarching system of gender inequality, constrain girls' ability to act independently and to challenge the terms of sexual relationships. This portrayal also makes clear that although others may support adolescent girls' relationships (such as male partners and parents), the costs of these unsafe sexual encounters are paid mainly by the girls.

The second, and much less often depicted, portrayal is of adolescent girls as active social agents who rationally choose their behaviors and negotiate their relationships. This viewpoint highlights the consensual nature of asymmetric relationships, often through in-depth investigation into adolescent girls' own experiences, and emphasizes that girls have learned that their sexuality is a valued resource. Therefore, adolescent girls exercise agency to extract money and gifts from older men for sexual services, and they may also engage with multiple partners simultaneously in order to maximize the benefits of these relationships. This portrayal also recognizes that pregnancy and nonuse of condoms may be included in some girls' strategies to attract and hold male partners. Accordingly, safer sexual practices—which may have long-term repercussions for their health and well-being—often conflict with the fulfillment of girls' short-term goals, such as acquiring financial resources and gifts.

The findings from the range of studies reviewed and presented here suggest that many adolescent girls' experience lies somewhere in between these two portrayals—they are not entirely victims, yet they are not entirely in control of their sexual relationships. Considerable sexual bargaining occurs, yet it takes place within a setting of significant power imbalance resulting from gender, age, and economic asymmetries. Interventions seeking to ensure that adolescent sexual relationships are safe, pleasurable, consensual, and responsible (ICRW and PSI 2002) will benefit from integrating these two realities and from recognizing that adolescents can control various aspects of their sexual experiences to varying degrees.

## Appendix

**Table A1** Statistics on prevalence of age asymmetry in sexual relationships involving adolescent females from studies reviewed, by country and study, sub-Saharan Africa

Country/location	Sample population, method, study date <sup>a</sup>	Study cited	Statistic
Guinea (urban)	3,603 males and females aged 15–24, random survey, 1995	Görgegen et al. 1998	Characteristic of unmarried females' (aged 15–24) current sexual partner <sup>b</sup> : Average five and a half years older For females aged 20–24: Average three to five years older For females aged 15–19: Average two years older For females aged 15–19: 65 percent are pupils or apprentices For females aged 20–24: 20 percent are pupils or apprentices
Kenya (urban and rural)	2,462 males and females aged 15–19, random survey, 1994	Kekovole et al. 1997	Characteristic of unmarried females' (aged 15–19) first sexual partner: Average age 18.2 (three years older than girl) Characteristic of unmarried females' (aged 15–19) current sexual partner <sup>b</sup> : Average age 21 Characteristic of unmarried females' (aged 15–19) most recent sexual partner: 40 percent aged 25+ 4 percent aged 30+
Zimbabwe (rural Manicaland Province)	4,419 males and 5,424 females aged 15–54, random survey, 1998–2000	Gregson et al. 2002	Characteristic of married and unmarried females' (aged 15–24) most recent sexual partner: Median age difference six years For females aged 20–24: Approximately 25 percent ten or more years older For females aged 17–19: Average approximately seven years older For females 21–24: Average approximately four years older
Uganda (rural Rakai District)	6,177 males and females aged 15–29, random survey	Kelly et al. 2003	Characteristic of married and unmarried females' (aged 15–29) most recent sexual partner: 98.2 percent same age or older than female partner For HIV+ females: Median age difference 6.3 years For HIV– females: Median age difference 5.7 years Reported characteristic of females' (aged 15–29) most recent sexual partner: 17 percent ten or more years older For females aged 15–19: 11.8 percent ten or more years older For females aged 20–24: 18.6 percent ten or more years older For females aged 25–29: 21.4 percent ten or more years older
Kenya (urban Kisumu) and Zambia (urban Ndola)	2,000 males and females aged 15–49, random survey	Glynn et al. 2001	Characteristic of married and unmarried females aged 15–19: 22.2 percent in Kisumu and 20.5 percent in Ndola had at least one sexual partner 25+ years old in the last year Characteristic of married and unmarried females aged 20–24: 75 percent in both Kisumu and Ndola had at least one sexual partner 25+ years old in the last year Characteristic of married and unmarried females' (aged 15–19) nonmarital sexual partners in the last year: 18 percent in Kisumu and 19 percent in Ndola 25+ years old
Cameroon (urban Yaoundé)	936 males and females aged 15–24, random survey, 1997	Lydié et al. forthcoming	Characteristic of married and unmarried females aged 15–24: 15.5 percent had at least one recent sexual partner (of most recent eight partners) ten or more years older Characteristic of married and unmarried females' (aged 15–24) recent sexual partners (up to 8): Median age difference five years
Zimbabwe (rural and urban)	100 male and female secondary-school students aged 14–19, random <sup>c</sup> focus groups	Sherman and Basset 1999	Characteristic of female secondary-school students' (aged 14–19) current sexual partner <sup>d, e</sup> : Most three to four years older
Uganda (rural Rakai District)	861 males and females aged 13–19, random survey, 1991	Konde-Lule et al. 1997	Characteristic of married and unmarried females' (aged 15–19) three most recent sexual partners: 23 percent same age 77 percent older: 50 percent aged 20–24 18 percent aged 25–29 6 percent aged 30–34 2.5 percent aged 35–39

**Table A1** (continued)

Country/location	Sample population, method, study date <sup>a</sup>	Study cited	Statistic
Tanzania (urban Dar es Salaam)	51 females aged 15–19 who had had induced abortions (all who presented in district hospital), in-depth interviews, 1997	Rasch et al. 2000	Characteristic of current sexual partner of unmarried females aged 15–19 who had had induced abortions <sup>b,†</sup> : 72.6 percent 30+ years old 98 percent 20+ years old 45 percent married
Tanzania (rural; urban Dar es Salaam)	51 females aged 15–19 who had had induced abortions (all who presented in district hospital in urban area) and 9 females aged 15–29 who had had induced abortions in one rural village, in-depth interviews and focus groups, 1997	Silberschmidt and Rasch 2001	Characteristic of current sexual partner of unmarried females aged 15–19 who had had induced abortions <sup>b,†</sup> : Most were married men twice girl's age 45 percent aged 30–39 27.5 percent aged 40+ Characteristic of current sexual partner of females aged 15–29 who had had induced abortions in rural area <sup>b,†</sup> : Age range 22–35+
Tanzania (urban Dar es Salaam)	455 females aged 14–30+ who had had induced abortions (all who presented in four public hospitals), in-depth interviews	Mpangile et al. 1993	Characteristic of sexual partner who was responsible for pregnancy of females aged 14–17 who had had induced abortions (married and unmarried): 79 percent older than female 31 percent aged 45+ Characteristic of sexual partner who was responsible for pregnancy of female students who had had induced abortions: Approximately 25 percent aged 45+ 9 percent same age as girl
Tanzania (rural Mwanza Region)	892 male and female primary- and secondary-school students aged 12+, random survey	Matasha et al. 1998	Characteristic of primary-school females <sup>*</sup> : 46 percent have ever had adult sexual partners (including teachers, relatives, and strangers) Characteristic of secondary-school females <sup>*</sup> : 24 percent have ever had adult sexual partners (including teachers, relatives, and strangers)
Cameroon (urban Yaoundé)	541 males and females aged 15–26, random survey	Calvès et al. 1996	Characteristic of unmarried females aged 15–20: 28.4 percent have ever gone out with a married man Characteristic of females aged 21–26: 50 percent have ever gone out with a married man
Cameroon (urban Yaoundé)	541 males and females aged 15–26, random survey	Calvès and Meekers 1997	Characteristic of unmarried females' (aged 15–26) partner at sexual initiation: 93.8 percent older than female 61.7 percent two or more years older 35.9 percent four or more years older
Kenya (rural and urban)	9,997 female secondary-school students aged 12–24, random survey, 1992	AMREF 1994	Characteristic of female students' first sexual activity <sup>‡</sup> : 3.2 percent with adult male
Kenya (truck stops)	200 males and females aged 15–19 at three truck stops, convenience sample of those in open areas of truck stops	Nzyuko et al. 1997	Characteristic of females' (aged 15–19) partner at sexual initiation <sup>‡</sup> : Median age four years older Characteristic of partner at sexual initiation of females aged 15–19 who usually have sex with truck drivers: Median age six years older

<sup>a</sup>Study date often not discernible from study description. <sup>b</sup>Assume one current partner only. <sup>c</sup>Not clear from text if sample was drawn randomly. <sup>d</sup>Not clear from text if current sexual partners include multiple partnerships. <sup>e</sup>Assume females are unmarried. <sup>f</sup>Not clear from text if current sexual partner or the partner responsible for pregnancy.

**Table A2** Statistics on prevalence of age asymmetry in sexual relationships involving adult men from studies reviewed, by country and study, sub-Saharan Africa

Country/location	Sample population, method, study date*	Study cited	Statistic
Nigeria (urban Ondo State)	488 males aged 15–50, random in-depth interviews	Orubuloye et al. 1992	Characteristic of males' (aged 15–50) nonmarital sexual partners in the last year: Average age seven years younger than average age of men 10 percent younger than 16 Approximately 20 percent younger than 18 33 percent students or apprentices 38 percent street traders (most fairly young)
Uganda (rural Rakai District)	1,428 males aged 15–49, random survey	Morris et al. 2000	Characteristic of male travelers' (aged 15–49) sexual partners in the last year: 44.5 percent aged 15–19 21.9 percent students Characteristic of male nontravelers' (aged 15–49) sexual partners in the last year: 31.0 percent aged 15–19
Kenya (urban Kisumu); Zambia (urban Ndola); Benin (urban Cotonou); Cameroon (urban Yaoundé)	Males and females aged 15–49 (sample size not reported), random survey	UNAIDS 1999	Characteristic of males' (aged 15–49) nonmarital sexual partners in last year: Average three years younger in Kisumu Average four years younger in Ndola Average four years younger in Cotonou Average four years younger in Yaoundé
Kenya (urban Kisumu)	2,670 males aged 20–45, random survey, 2001	Luke 2002	Characteristic of males' (aged 20–45) nonmarital sexual partners in the last year: 10.8 percent ten or more years younger 50.2 percent two years older or younger Characteristic of males' (aged 25–45) nonmarital sexual partners in the last year: 23.9 percent ten or more years younger 58.9 percent four years older or younger Characteristic of sugar daddies' (aged 25–45) (men who are ten or more years older and gave any amount of transaction) nonmarital sexual partners in the last year: 49.5 percent are adolescent females (aged <20) Characteristic of non-sugar daddies' (aged 25–45) nonmarital sexual partners in the last year: 30 percent adolescent females (aged <20)
Kenya (urban Kisumu) and Zambia (urban Ndola)	1,000 males and females aged 15–49, random survey	Glynn et al. 2001	Characteristic of males aged 25–49: 33.3 percent in Kisumu and 33.7 percent in Ndola had at least one nonmarital sexual partner younger than 20 in the last year 23.3 percent in Kisumu and 19.6 percent in Ndola, all nonmarital sexual partners were younger than 20 in the last year Characteristic of males' (aged 15–49) nonmarital sexual partners in the last year: 66 percent in Kisumu and 55 percent in Ndola younger than 20 Characteristic of males' (aged 25–49) nonmarital sexual partners in the last year: 27 percent in Kisumu and in Ndola younger than 20

\* Study date often not discernible from study description.

**Table A3** Statistics on prevalence of transactional sex among adolescent females from studies reviewed, by country and study, sub-Saharan Africa

Country/location	Sample population, method, study date <sup>a</sup>	Study cited	Statistic
Cameroon (urban Edea and Bafia)	1,600 males and females aged 12–22, random survey	Meekers and Calvès 1997b	Reported ever involvement of females aged 12–17 in sexual relations for exchange of money/gifts: 5 percent Reported ever involvement of females aged 18–22 in sexual relations for exchange of money/gifts: 15 percent
Cameroon (urban Yaoundé)	541 males and females aged 15–26, random survey	Calvès and Meekers 1997	Reported ever involvement of females in sexual relations for exchange of money/gifts: Females aged 15–20: 30 percent 33 percent say money is a current motive for multiple partnerships Females aged 21–26: 41 percent
Malawi	300 females aged 10–18, random <sup>b</sup> survey	Reported in Weiss et al. 1996	Reported involvement of sexually active females aged 10–18 in sexual relations for exchange of money/gifts <sup>c</sup> : Approximately 66 percent
Nigeria	500 female university students aged 16+, random survey	Reported in Weiss et al. 1996	Reported involvement of sexually active university women aged 16+ in sexual relations for exchange of money/gifts/favors <sup>c</sup> : 18 percent
Uganda (rural)	80 female secondary-school students aged 12–20, random survey	Nyanzi et al. 2000	Reported ever involvement of sexually active secondary-school females aged 12–20 in sexual relations for exchange of money/gifts: 85 percent
Kenya (truck stops)	200 males and females aged 15–19 at three truck stops, convenience sample of those in open areas of truck stops	Nzyuko et al. 1997	Females aged 15–19 reporting usually receiving money/gifts in exchange for sexual relations: 78 percent Females aged 15–19 who usually have sex with truck drivers reporting usually receiving money/gifts for sexual relations: 96 percent
Kenya, Mali, Uganda, Zambia, Zimbabwe	Females aged 15–49 (sample size not reported), random survey (DHS)	PRB 2001	Unmarried females aged 15–19 reporting recently receiving money/gifts in exchange for sexual relations <sup>d</sup> : 21 percent Kenya (within past 12 months) 26 percent Mali (within past 12 months) 31 percent Uganda (last sexual encounter) 38 percent Zambia (within past 12 months) 13 percent Zimbabwe (within past 4 weeks)
Mozambique (urban Maputo)	82 female working- and middle-class secondary-school students aged 14–20, random survey	Machel 2001	Female secondary-school students aged 14–20 who reported receiving material help from male sexual partners <sup>c,d</sup> : 63 percent in working-class school 6 percent in middle-class school
Uganda (rural Rakai District)	861 males and females aged 13–19, random survey, 1991	Konde-Lule et al. 1997	Relationships (most recent three) of females aged 15–19 that involve economic support: 90 percent
Tanzania (rural Mwanza region)	892 male and female primary- and secondary-school students aged 12+, random survey	Matasha et al. 1998	Report that reason for having sex is presents or money: 52 percent of female primary-school students 10 percent of female secondary-school students
Swaziland (rural and urban)	202 male and female secondary-school students aged 14+, random in-depth interviews, 1990–91	McLean 1995	Female students aged 14 or older who reported that they are sexually active because of financial need: 20 percent Boys aged 14 or older who reported that they think girls want gifts to demonstrate boys' affection: 36 percent

<sup>a</sup> Study date often not discernible from study description. <sup>b</sup> Not clear from text if sample was drawn randomly. <sup>c</sup> Not clear from text if reference for reported behavior is ever involvement in transactional sex or only with recent/current partners. <sup>d</sup> Not clear from text if sample is all females or only sexually active females.

**Table A4** Statistics on associations between age and economic asymmetries and HIV infection and sexual behaviors from studies reviewed, by country and study, sub-Saharan Africa

Country/location	Sample population, method, study date*	Study cited	Statistic
Uganda (rural Rakai District)	6,177 males and females aged 15–29, random survey	Kelly et al. 2003	<p><i>HIV infection for those married and unmarried females with at least one sexual partner in past five years:</i></p> <p>Increased relative risk (1.28 for ages 15–29, 2.04 for ages 15–19, 1.24 for ages 20–24, and no significant risk for ages 25–29) for those with primary male partners ten or more years older compared with those with partners zero to four years older in multivariate analysis</p> <p>Increased population attributable fraction (12.4 percent for those aged 15–19 and 5.1 percent for those aged 20–24) for those with sole male partner ten or more years older compared with those with partners zero to four years older</p> <p>Increased population attributable fraction (13.8 percent for those aged 15–19 and 7.3 percent for those aged 20–24) for married females with husbands ten or more years older compared with those with husbands zero to four years older</p> <p><i>Incidence of HIV infection for those married and unmarried females with at least one sexual partner in past five years:</i></p> <p>Decreased relative risk (0.18 for those aged 25–29 and no significant risk for those aged 15–19 and 20–24) for those with most recent male partner ten or more years older compared with those with partners zero to four years older in multivariate analysis</p>
Zimbabwe (rural Manicaland Province)	4,419 males and 5,424 females aged 15–54, random survey, 1998–2000	Gregson et al. 2002	<p><i>HIV infection for those married and unmarried individuals sexually active in the last month:</i></p> <p>Increased odds of infection with one-year age difference with most recent sexual partners (up to two) on HIV infection in bivariate analysis</p> <p>For females aged 17–24 who are younger than partner: OR 1.03</p> <p>For males aged 17–24 who are older than partner: OR 1.13</p> <p>Increased odds of infection (1.04 for males and females aged 17–24) with one-year age difference with most recent partner on HIV infection in multivariate analysis</p> <p><i>HIV infection for those married and unmarried individuals sexually active in the last two weeks:</i></p> <p>Increased odds of infection (1.04 for males and females aged 17–24) with one-year age difference with most recent partner on HIV infection in multivariate analysis</p>
Kenya (urban Kisumu) and Zambia (urban Ndola)	2,000 males and females aged 15–49, random survey	Glynn et al. 2001	<p><i>HIV infection for those married females with marital or nonmarital partnerships in last year:</i></p> <p>Positive effect of husband four or more years older in bivariate analysis (for females aged 15–19: 0 percent of those with husbands fewer than four years older were HIV+ in Kisumu and Ndola; 38 percent in Kisumu and 34 percent in Ndola with husbands four or more years older were HIV+)</p> <p>No effect of age group of oldest nonmarital partner on HIV infection among unmarried females aged 15–49 in bivariate analysis</p>
Cameroon (urban Yaoundé)	936 males and females aged 15–24, random survey, 1997	Lydié et al. forthcoming	<p><i>HIV infection for those married and unmarried individuals aged 15–24 and recent sexual partners (up to eight):</i></p> <p>No effect for females with a recent partner ten or more years older compared with those with no partners ten or more years older</p> <p>No effect for males with a recent partner ten or more years younger compared with those with no partners ten or more years younger</p>
Kenya (urban Kisumu)	2,670 males aged 20–45, random survey, 2001	Luke 2002	<p><i>Condom use at last sexual intercourse for married and unmarried men aged 20–45 with nonmarital sexual partners in the last year (up to five):</i></p> <p>Decreased odds (0.97 for those aged 20–45) for one-year age difference within partnership in bivariate and multivariate analyses</p> <p>Decreased odds (0.99 for those aged 20–45) for one-Kenyan shilling increase in transaction to female partner in multivariate analysis</p> <p><i>Condom use at last sexual intercourse for married and unmarried men aged 20–45 with nonmarital sexual partners in the last year (up to five):</i></p> <p>Decreased odds (0.61 for those aged 20–45) in partnerships where man is ten or more years older and made transaction with female partner compared with partnerships where man is fewer than ten years older and/or made no transaction in bivariate and multivariate analyses</p>
Uganda (urban and rural Masaka and Lira districts)	1,356 females aged 20–44 and long-term partners, random survey, 1995–96	Blanc and Wolff 2001	<p><i>Discussion of condom use ever with long-term sexual partner for married and unmarried individuals aged 20–44:</i></p> <p>No effect for females with partner five to nine or ten or more years older compared with those with partner fewer than five years older in multivariate analysis</p> <p>No effect for males with partner five to nine or ten or more years younger compared with those with partner fewer than five years younger in multivariate analysis</p>



**Table A4** (continued)

Country/location	Sample population, method, study date <sup>a</sup>	Study cited	Statistic
			<i>Condom use ever with long-term sexual partners for married and unmarried individuals aged 20–44:</i> Decreased odds (0.57) for females with partner five to nine years older and decreased odds (0.46) for those with partner ten or more years older compared with those with partner fewer than five years older in multivariate analysis No effect for males with partner five to nine or ten or more years younger compared with those with partner fewer than five years younger in multivariate analysis
South Africa (rural and urban: Eastern Cape, Mpumalanga, and Northern Provinces)	1,164 females aged 18–49, random survey	Jewkes et al. 2003	<i>Discussion of HIV ever with sexual partner for married and unmarried females aged 18–49 with most established partner in last year<sup>b</sup>:</i> Negative effect for those reporting greater than five-year age difference with partner compared with those reporting partner five or fewer years older in bivariate analysis Decreased odds (0.65 for those aged 18–49) for those reporting greater than five-year age difference with partner compared with those reporting partner five or fewer years older in multivariate analysis <i>Suggested condom use ever for married and unmarried women with most established sexual partner in the last year<sup>b</sup>:</i> Negative effect for those reporting greater than five-year age difference with partner compared with those reporting partner five or fewer years older in bivariate analysis; no effect in multivariate analysis

<sup>a</sup>Study date often not discernible from study description. <sup>b</sup>Assumes or includes only one partner from study description.

## Notes

- Economic asymmetry in this review is defined as transaction between sexual partners, not the relative difference in incomes or economic status between partners, although older partners are likely better off than adolescent girls (Komba-Malekela and Liljestrom 1994).
- Age mixing and transaction in sexual relationships are also reported for male adolescents and older women (Barker and Rich 1992; Calvès et al. 1996; Calvès and Meekers 1997; Meekers and Calvès 1997a and 1997b; Webb 1997; Gage 1998; Gørgen et al. 1998) and men who have sex with men; however, these topics are not the focus of this examination.
- For more information on indicators and analysis issues, see Luke and Kurz (2002).
- These examples appear to support the conclusion that there is an age effect according to which, as girls age, they are involved in relationships with increasingly older men. Nevertheless, these findings could be explained by a period or cohort effect. To accurately identify age, period, and cohort effects, data on the age differences between partners is required for several cohorts of girls over time, which, to date, no study has collected or reported.
- Although many older partners are already married (Calvès et al. 1996; Rasch et al. 2000), polygyny is still common in many parts of Africa. Therefore, an adolescent girl may believe that a married partner might take her as an additional wife.
- We found little evidence that evaluates the success of adolescent girls' or young women's strategy of becoming pregnant in order to secure a relationship, including marriage, with a boyfriend. For example, Fuglesang's (1997) observations suggest that Tanzanian men seldom take responsibility for pregnancies with younger partners.
- Selection into marriage is another effect that the studies do not consider; in fact, marriage may be a marker for unobserved characteristics that are associated with HIV infection (see Clark 2002).

- Data on multiple partnerships for adolescent girls can control for their selection into relationships, but it cannot control for selection of girls' partners into these relationships.
- Longfield et al. (2002) report that adolescent girls wish to keep their older partners secret from parents and from boyfriends of their own age, a desire that may lead to underreporting such relationships in surveys.
- Several studies use two age-difference categories in their regression analyses, for example, partnerships in which the age disparity is more than five years compared with those where it is five years or less. These studies find significant differences between the categories; however, because only two categories are constructed, it is not possible to determine the linearity of the underlying relationships (Blanc and Wolff 2001; Glynn et al. 2001; Jewkes et al. 2003; Lydié et al. forthcoming).
- See Kaufman and Stavrou (2002) for a qualitative study that looks at many of these issues.

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## Acknowledgments

This research was undertaken in collaboration with PSI as part of the AIDSMark project, funded by the Office of HIV/AIDS, Global Bureau, and the Office of Sustainable Development, Africa Bureau, the United States Agency for International Development. The author would like to thank Kathleen Kurz, John Berman, Robert Kelly, Kim Longfield, Kaivan Munshi, and Susan Watkins for their comments.