Age differences at sexual debut and subsequent reproductive health: Is there a link?

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Abstract

Background

Experiences at sexual debut may be linked to reproductive health risk later in life. Additionally, young women with older sexual partners may be at greater risk for HIV and sexually transmitted infections. This study examines the relationship between sexual debut with an older partner and subsequent reproductive health outcomes among 576 sexually experienced women aged 15-24 who utilized voluntary counseling and testing or reproductive health services in Port-au-Prince, Haiti.

Methods

Logistic regression analyses were conducted to establish, controlling for socioeconomic and demographic factors, whether the age of the first sexual partner is significantly associated with subsequent reproductive health behaviors. Outcomes include: STI diagnosis in the previous 12 months, condom use at first intercourse, condom use at last intercourse, and modern contraceptive use at last intercourse.

Results

66% of women reported sexual initiation with a partner younger or less than 5 years older, 30% with a partner 5 to 10 years older, and 4% with a partner 10 or more years older. There is a significant relationship between sexual debut with a partner 5 to 9 years older and decreased likelihood of recent use of condoms compared with clients with a smaller age difference interval with their partners at sexual debut. Age differences were not linked to recent STI diagnosis or current family planning use.

Conclusions

These results indicate that programs focused on delaying sexual debut should also consider age mixing and power relations between young women and older men. Future studies should consider whether wide age differentials at sexual debut are predictive of continued involvement in intergenerational relationships.

Background

A woman's experience at sexual debut is associated with future reproductive health outcomes. Women who sexually debut at earlier ages are more likely to participate in high-risk behaviors and experience unintended pregnancy, HIV and STIs [1-3]. Additionally, if sexual initiation is forced, young women may be at higher risk for poor reproductive health, repeat sexual violence and earlier initiation of consensual sex [4-7]. Though research has examined how age differentials in current sexual relationships influence reproductive health, few studies have focused on how age differences between women and their partners at *first sex* affect subsequent reproductive health outcomes.

Relationships between young women and older men are considered normative in many cultural contexts. However, women in sexual relationships with older male partners have been found to have poor reproductive health outcomes, including increased risk for HIV infection [8-10]. In sub-Saharan Africa disproportionately high rates of HIV among adolescent women are often attributed to older male sexual partners [8, 9]. Dissassortive sexual age mixing patterns can provide an entryway for HIV and STIs into the younger generation [10]. Research shows that adolescent women who are pregnant are more likely to have older sexual partners on average than representative samples of sexually active adolescent women [11, 12]. In the context of poverty and gender inequity, intergenerational sex often involves sex in exchange for money or goods (transactional sex), characterized by less condom use and sexual coercion [9, 13-15].

The biological risks of intergenerational sex may be in part due to the power imbalances associated with the wide age differentials between partners [16, 17]. Particularly if a young woman is dependent on an older man for financial support, she

may have little power to negotiate safe sex [14]. Furthermore, in instances where a young woman does assert herself, she may be faced with sexual and physical violence [18, 19].

One of the least developed countries in the world and poorest in the Western hemisphere, Haiti has the highest HIV prevalence in Latin America and the Caribbean. HIV prevalence for females was estimated in 2005-06 to be 2.3%, with the highest rates among women 25-29 (3.5%) and 30-35 (4.1%) [20]. Crude HIV prevalence declined at sentinel antenatal care clinics between 1993 and 2004, attributed to increasing levels of condom use with non-regular partners, monogamy and abstinence, though this trend was not apparent in young pregnant mothers [21]. Nonetheless, survey data indicate that youth are initiating sexual activity earlier and in greater proportions. In the 2005-06 Haiti Demographic and Health Survey, 54% of 20- to 24-year-olds sexually debuted by age 18, an increase from 48% in 2000 and 41% in 1994-95 [22].

The HIV epidemic in Haiti is fueled by an unstable economy and violence against women. At the population level, 16% of women in union reported experiencing sexual violence in the past 12 months in 2000, with an increased risk in communities where women headed a high proportion of households [23]. Economic insecurity forces women to initiate sexual activity earlier and to depend on sexual relationships for financial support, often with older men [24, 25]. To date, little is known about the circumstances and ramifications of power imbalances, sexual violence, and transactional sex experienced by youth in Haiti.

While it is apparent that partner age differences in current relationships may affect reproductive health, little is known about the effect of partner's age at sexual debut on reproductive health. This study begins to fill this gap by examining the

association between intergenerational first sex and reproductive health outcomes among young women ages 15-24 in Port-au-Prince, Haiti.

Methods

The data for this study were collected in 2004 from youth users of five Fondation pour la Sante Reproductrice et l'Education Familiale (FOSREF) facilities in Port au Prince, Haiti. Young women and men between the ages of 15-24 years visiting one of four youth centers for reproductive health services, voluntary counseling and testing for HIV (VCT) or to receive condoms were approached for interview after they had received services. In addition, young women visiting a reproductive health clinic for all ages were approached for interview after receiving services. The methods of the study have been described in more detail elsewhere [26]. A total of 478 young men and 807 young women were interviewed. This secondary data analysis relies on a subset of 599 young women who had initiated sexual activity at the time of the interview and excludes all men, sexually inexperienced women (n = 84), as well as sexually experienced women with missing information about age of sexual initiation (n = 38) and age of partner at first sex (n = 106).

The independent variable of interest is categorical and describes intergenerational first sex, or the difference between the age of the respondent and her partner. Respondents were asked, “What was the age of the person with whom you had your first sexual intercourse?” Responses were categorized into three binary variables: younger than the woman or less than 5 years older, 5-9 years older than the woman, and 10 or more years older than the woman. While there are no standard age difference categories [14], these age groupings were formulated based on other studies examining sexual mixing patterns between older men and younger women [8, 9, 13]. Outcomes of interest included binary variables indicating whether the

respondent was diagnosed with an STI in a clinic in the previous 12 months, whether a condom was used at last sex, and whether the respondent currently used a modern family planning method. Respondents were asked, "Are you currently using a method of contraception to prevent pregnancy?" Modern family planning methods included birth control pills, injectable contraceptives, implants, condoms and intrauterine devices.

The following sociodemographic characteristics were included as categorical variables in all multivariate logistic regression models: number of years since sexual initiation (0-2 years, 3-5 years, and 6 or more years); religion (Catholic, Protestant, and other); whether the respondent was currently employed; current age (15-18, 19-22, and 23-24); highest level of education completed (primary, secondary, and higher); current relationship status (in union if the respondent was married or living with her partner, or not in union); and which type of facility the client was visiting (youth center or reproductive health clinic for all ages). Individual dummy variables for each clinic were not included in the models presented here, as they did not have an effect on any of the reproductive health outcomes. Principal components analysis was used to create a standards of living index as a proxy measure for socioeconomic status for the entire sample of men and women [27]. A woman was considered to be of low socioeconomic status if she was in the lowest 40% of the index, medium socioeconomic status in the next 40%, and high socioeconomic status for the top 20%.

Descriptive statistics were calculated. We used cross-tabulations of the age difference between the respondent and her first sexual partner, and characteristics of sexual debut to better understand the circumstances of first sex. Pearson's chi-squared tests were used to assess significant differences in sexual initiation by partner age difference. Bivariate and multivariate logistic regression models were used to

examine the relationship between intergenerational first sex and reproductive health outcomes. All analyses were performed in STATA version 9.1.

Results

Among the 599 women who met inclusion criteria for this study, 27% experienced first sex with a partner 5 to 9 years older, while 7% had a first sexual partner 10 or more years older (Table 1). The majority of respondents (66%) initiated sexual activity with a partner younger or fewer than 5 years older. Less than 13% reported being diagnosed with an STI in the previous year, while 29% said they used a condom at last sex and 50% reported currently using a modern family planning method. More than half of the participants had ever been pregnant, and 56% reported being in union. Less than 20% of respondents initiated sexual activity before age 15. Forty-six percent of the women fell into the lowest socioeconomic status category. Most women (77%) had completed secondary education.

In cross tabulations of characteristics of the respondent's sexual debut by the age difference between her and the partner, 23% of women with partners 5 to 9 years older initiated sex before age 15, as compared to 19% of women with partners less than 5 years older and 14% with partners 10 or more years older (see Table 2). Conversely, women who initiated sex with a partner who was 10 or more years older were the most likely to be age 18 or older at the time of first sex; these partners would have been close to their thirties or older. Among women with first sexual partners 10 or more years older, 5% described their partner as their husband, while less than 1% of women with partners less than 5 years older and 2% with partners 5 to 9 years older did so. Among respondents with partners less than 5 years older, 96% described the first partner as a boyfriend, compared to 95% of women with partners 5 to 9 years older and 84% with partners 10 or more years older. The differences were marginally

significant (p = .09). Women with partners 5 to 9 years older were the least likely to use a condom at first sex (18%), followed by those with first sexual partners 10 or more years older (19%). Women who were closer in age to their first sexual partners were more likely to use a condom (23%) but only slightly so. These differences were not significant.

Bivariate logistic regression models demonstrated a significant relationship between partner age difference and condom use at last sex. In particular, women who reported having a partner 5 to 9 years older were less likely to use a condom use at last sex as compared to women whose first sexual partner was younger or less than 5 years older (see Table 3). There was no significant relationship between age differences at first sex and recent STI diagnosis or current modern contraceptive use. Having a first sexual partner 10 or more years older did not have a significant effect on any of the three reproductive health outcomes.

Controlling for sociodemographic and reproductive characteristics, women who sexually debuted with partners 5 to 9 years older continued to be significantly less likely to use condoms at last sex (OR: 0.55, CI: 0.34-0.89 - see Table 4). There was no significant effect on current modern family planning method use or recent diagnosis of STIs. A first sexual partner 10 or more years older did not have a significant effect on STI diagnosis, condom use at last sex or current family planning use.

Other multivariable results suggest that having ever been pregnant was highly significantly associated with a decreased likelihood of condom use and an increased likelihood of contraceptive use. Seeking services at the women's reproductive health clinic was linked with a decreased likelihood of a recent STI diagnosis as compared to clients of the youth centers. Respondents who reported being a religion other than

Protestant or Catholic were significantly less likely to be currently using a modern contraceptive method, while female youth who had completed higher education had a significantly increased likelihood of condom use at last sex. However, there was also a significant and negative link between secondary and higher education and family planning use. Women in union and those aged 23 or 24 were significantly more likely to be using modern contraception. The socioeconomic status, employment status and time since sexual debut variables were not significantly linked with any reproductive health outcome.

Discussion

This analysis demonstrates a significant relationship between sexual debut with a partner 5 to 9 years older and decreased likelihood of recent use of condoms compared with clients with a smaller age difference interval with their partners at sexual debut. Sexual debut with a partner 5 to 9 years older was not significantly linked to recent STI diagnosis or current family planning use. Initiating sexual activity with a partner 10 or more years older was not significantly associated with any of the outcomes of interest, though the number of women with first sexual partners 10 year or older at sexual debut was small (n=43).

We hypothesize that the lower likelihood of condom use at last sex among women whose first sexual partner was 5 to 9 year older is due to an imbalance in power differentials that began at sexual debut. It may be that these women's sexual initiation with an older partner was coercive and disempowering, thereby setting a relationship pattern which limits their ability to negotiate for condom and contraceptive use later in life. Power imbalances may lead to a lack of communication between partners, thus limiting a young woman's ability to advocate for condom and contraceptive use [16].

It is curious that the group of women whose first sexual partners were 5 to 9 years older had a significant risk for condom non-use at last sex, but those with partners 10 years or older did not. It may be that there was not enough power in the sample to detect a significant association between the oldest partner age difference and the reproductive health outcomes. We also note that women's relationships with partners who were 5 to 9 years older were different from those relationships women had with partners 10 or more years at a marginal significance level ($p = 0.09$). Those who first had sex with a partner 10 or more years older were more likely to be married to the partner, thus facing less subsequent reproductive health risk due to fewer lifetime sexual partners. Though partners 10 years or older are typically considered to be of higher risk, a partner 5 to 9 years older may be more likely to be less faithful, as they are not yet looking for a long-term partner [28].

Intergenerational first sex did not have a significant effect on recent STI diagnosis or current family planning use. Because this convenience sample was recruited from reproductive health and youth clinics, they may have better access to family planning methods and STI treatment as compared to adolescents who do not seek reproductive health services. Furthermore, respondents were only asked about a STI diagnosis in the past year rather than ever. A comparison of this sample to youth from Port-au-Prince in the 2000 Haiti DHS found that youth interviewed in FOSREF clinics had more access, motivation and need to use reproductive health service than sexually experienced youth in the general population [26].

This analysis was limited by the cross-sectional, non-representative nature of the sample. We were unable to establish a causal relationship between age differences at first sex and later reproductive health behaviors. Respondents were not surveyed about the lifetime number of sexual partners or age of current sexual partners. It is

possible that a woman's first sexual partner was also her current sexual partner and that the relationship between intergenerational first sex and condom use is reflective of current sexual relationships. Moreover, it would be interesting to examine age differentials at sexual debut and transactional sex. Although respondents were asked if they had ever given or received money or gifts in exchange for sex, only a very low proportion of women responded affirmatively (less than 2%). While this may reflect a low occurrence of transactional sex among the study population, these data are limited by the wording of this questions, as young women may have perceived an affirmative answer to the question to imply commercial sex work [13]. Additionally, 17% of sexually experienced women were excluded from this analysis due to missing data on age of sexual initiation and/or age of first sexual partner. Though most women with missing data reported their first sexual partner to be a boyfriend, perhaps their lack of knowledge about this partner's age may reflect a more casual and potentially risky relationship.

Respondents were not asked if their first sex was forced or consensual. Past research implies that forced sex is not uncommon in Haiti [23, 29, 30]. When considering the intersections between power imbalances and age differences in partners, violence may be an important and relevant factor in investigating intergenerational first sex and adverse reproductive health outcomes [14].

Conclusions

This is one of the few studies to examine partner age differences at sexual debut and subsequent reproductive health outcomes. Most studies focus on age differences between young women and current partners. Despite the limitations, the results of suggest that the circumstances at sexual debut, specifically age differentials, may have long-term implications for reproductive health behaviors. More

information is needed to confirm this assertion and also to better understand the mechanisms by which age differences at sexual debut work to result in longer-term reproductive health risk and to understand the motivations of men and young women to engage in such relationships. Future research should investigate links between intergenerational first sex and later reproductive health outcomes, taking into account the co-occurrence with sexual violence and transactional sex. In the creation of programs to delay sexual debut, age and gender power imbalances should be considered, particularly among economically vulnerable young women.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

AMG conceived and designed this research paper, conducted data analysis, and drafted and revised the manuscript. ISS and HR participated in designing the study, interpretation of results, and drafting and critically reviewing the manuscript. NM, at the time of paper writing, was based at the lead organization that initiated the research study. She designed the study and reviewed the manuscript. HB is from the local implementing firm and played a key role in collecting the data and revising the manuscript. All authors read and approved the final manuscript.

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Tables

Table 1 - Characteristics of sexually experienced, female VCT and reproductive health clients aged 15-24, Port-au-Prince, Haiti, 2004

Age difference between respondent and first sexual partner	
≤ 4 years	65.3
5 years to 9 years	27.6
≥ 10 years	7.2
Diagnosed with an STI in past 12 months	12.5
Used a condom at last sex	29.6
Currently uses a modern method of family planning*	50.4
Has ever been pregnant	56.9
Clinic type	
Women's reproductive health	24.9
Youth center	75.1
Age of sexual initiation	
≤ 14	
15-17	
≥ 18	
Years since sexual initiation	
0-2	29.2
3-5	39.6
≥ 6	31.2
Socioeconomic status	
Highest	18.4
Middle	35.6
Lowest	46.1
Religion**	
Catholic	51.6
Protestant	33.6
Other	13.5
Employed***	18.5
Current age	
15-18	22.9
19-22	50.1
23-24	55.9
Relationship status**	
Not in union	42.7
In union	55.9
Highest level of education completed****	
Primary	13.2
Secondary	76.3
Higher	7.4

Notes: n = 599. *Question was only asked to women who were not pregnant (n=554). **8 women were missing data. ***2 women were missing data. ****19 women were missing data.

Table 2 - Characteristics of sexual initiation by first sexual partner's age

Age difference between respondent and partner at first sex	Younger or less than 5 years older	5 to 9 years older	10 or more years older
Age of sexual initiation			
≤ 14	18.7	23.0	14.0
15-17	54.2	49.7	46.5
≥ 18	27.1	27.3	39.5
Mean (yrs)	16.4	16.2	16.9
χ2 p-value	*0.307*		
Age difference between respondent and partner			
Mean (yrs)	2.1	6.3	13.0
Relationship to first sexual partner*			
Husband	0.5	1.8	4.7
Boyfriend	96.2	95.2	83.7
Friend	2.3	1.2	4.7
Other	0.8	1.8	2.3
χ2 p-value	*0.091*		
Used a condom at first sex	23.0	17.6	18.6
χ2 p-value	*0.326*		

Notes: n = 599. *3 women were missing data.

Table 3 - Odds ratios (and 95% confidence intervals) from bivariate logistic regression models assessing the association of reproductive health outcomes with intergenerational first sex

	STI diagnosis in previous 12 months n = 599		Condom used at last sex n = 559		Current modern family planning use n = 554	
Age difference between respondent and first sexual partner						
≤ 4 years	1.00		1.00		1.00	
5 years to 9 years	1.01	(0.58-1.76)	0.52	(0.34-0.80)**	1.07	(0.73-1.57)
≥ 10 years	1.67	(0.73-3.82)	0.87	(0.44-1.72)	1.27	(0.64-2.52)

Notes: ** $p<0.01$.

Table 4 - Odds ratios (and 95% confidence intervals) from multivariate logistic regression models assessing the association of reproductive health outcomes with intergenerational first sex

	STI diagnosis in previous 12 months n = 565		Condom used at last sex n = 565		Current modern family planning use n = 524	
Age difference between respondent and first sexual partner						
≤ 4 years	1.00		1.00		1.00	
5 years to 9 years	0.94	(0.53 - 1.70)	0.55	(0.34-0.89)*	0.96	(0.61-1.50)
≥ 10 years	1.49	(0.61 - 3.60)	0.92	(0.42-2.00)	1.05	(0.47-2.33)
Years since sexual debut						
≥ 6 years	1.00		1.00		1.00	
3-5 years	0.77	(0.40-1.49)	0.83	(0.48-1.45)	0.72	(0.38-1.33)
1-2 years	0.73	(0.33-1.64)	0.95	(0.51-1.78)	1.05	(0.62-1.80)
Ever pregnant						
No	1.00		1.00		1.00	
Yes	1.28	(0.70-2.33)	0.32	(0.20-0.51)***	2.18	(1.39-3.40)***
Clinic type						
Youth center	1.00		1.00		1.00	
Women's reproductive health	0.39	(0.18-0.84)*	0.66	(0.38-1.16)	0.82	(0.49-1.39)
Socioeconomic status						
Highest	1.00		1.00		1.00	
Middle	0.96	(0.49-1.90)	0.94	(0.54-1.61)	1.28	(0.74-2.21)
Lowest	0.66	(0.31-1.39)	0.72	(0.41-1.26)	1.09	(0.62-1.92)
Religion						
Catholic	1.00		1.00		1.00	
Protestant	0.84	(0.46-1.51)	0.93	(0.60-1.44)	0.68	(0.44-1.05)
Other	1.44	(0.69-3.02)	0.77	(0.41-1.45)	0.31	(0.16-0.58)***
Employment status						
Not employed	1.00		1.00		1.00	
Employed	0.62	(0.28-1.35)	0.94	(0.49-1.81)	1.35	(0.72-2.51)
Current age						
15-18	1.00		1.00		1.00	
19-22	1.54	(0.72-3.31)	1.18	(0.70-1.97)	1.23	(0.73-2.08)
23-24	1.60	(0.63-4.05)	0.57	(0.28-1.16)	2.13	(1.07-4.23)*
Relationship status						
Not in union	1.00		1.00		1.00	
In union	1.71	(0.96-3.04)	0.78	(0.51-1.19)	1.79	(1.18-2.72)**
Education level						
Primary	1.00		1.00		1.00	
Secondary	1.57	(0.60-4.09)	1.44	(0.66-3.11)	0.32	(0.15-0.68)**
Higher	1.67	(0.45-6.20)	3.10	(1.08-8.94)*	0.13	(0.04-0.38)***

Notes: * p<0.05. ** p<0.01. *** p<0.001