Gender Differences in Sexual Attitudes and Behaviors among Young Adults in Cebu, Philippines

Jessica D. Gipson, MPH PhD
Assistant Professor, Department of Community Health Sciences
Fielding School of Public Health, University of California, Los Angeles

Andrew Hicks, MS
Assistant Director, CCPR Statistics and Methods Core, California Center for Population Research
University of California, Los Angeles

Socorro Gultiano, PhD
Senior Research Associate, Office of Population Studies
University of San Carlos, Cebu, Philippines

Abstract
Social environment and family context exert substantial influence on adolescent sexual behaviors. These influences are especially important to examine in countries undergoing rapid demographic and social change. This study employs unique, intergenerational and longitudinal data (1998-2009) to assess the effects of parental, peer, and household influences on sexual initiation among young adults in Cebu, Philippines. Data from the 1998-2009 Cebu Longitudinal Health and Nutrition Surveys (CLHNS) are analyzed to examine the predictors of age at first sex among young, Filipino men and women. Gender-stratified Cox proportional hazards and regression models are used to model the time to first sex. Household, family, peer, and individual characteristics had disparate influences on sexual initiation among Filipino boys and girls. Boys' sexual initiation was positively associated with urbanicity, mother's age, and the presence of a family member working abroad, whereas for girls, these variables had no effect or opposite effects. Unique effects were also found for girls – girls with more educated mothers and more conservative attitudes regarding dating, sex, and marriage had lower hazards of sex; however, girls' number of siblings and higher communication with mother were associated with higher hazards. Additionally, the effects of some variables varied across time, indicating that the developmental trajectories for boys and girls may be differentially influenced by contextual characteristics. Amidst substantial social and demographic changes, as well as the persistence of more traditional gender norms, this study highlights the importance of examining the unique influences and intersections of gender and context on sexual initiation in the Philippines.

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Introduction

Social environment and family context exert important influences on adolescent sexual behaviors and subsequent adult behaviors. Examination of these contextual influences is especially important in countries undergoing rapid demographic and social change, where young adults' social environments are much different from those of past generations.

Global trends indicate that age at puberty, and in some settings, age at first sex is decreasing while age at marriage is increasing [1]. These changes have important implications for health and demographic outcomes. Earlier sexual initiation indicates earlier exposure to the risk of pregnancy and sexually transmitted infections. Young adults who have sex at an earlier age are more likely to truncate schooling due to pregnancy, not use contraception, acquire HIV or other sexually transmitted infections (STIs), and have higher rates of unwanted pregnancies [2-5]. The widening gap between puberty and marriage also indicates that adolescents are more susceptible to premarital or unintended pregnancies [6].

An extensive literature exists on the constellation of factors associated with adolescents' sexual attitudes and behaviors, though much of this literature is focused on Western and higher-income settings. Empirical evidence from global settings has indicated the strong influence of gender norms and the importance of socioeconomic inequality in determining the timing and patterns of adolescent sexual behavior, overall, and in explaining the differences between young men's and women's behavior [7, 8]. Longitudinal studies in rapidly changing, developing country contexts also indicate the importance of family characteristics in influencing individual sexual and fertility behavior, including mother's and siblings' fertility behavior, family structure, and family religiosity [9-11]. Additionally, as the world becomes more interconnected through travel, overseas employment opportunities, and internet and mobile communications, it is more likely that adolescents are exposed to alternate ideas and norms regarding sexuality and childbearing [12, 13].

Similar to other global settings, the Philippines has witnessed rapid urbanization and industrialization, with concurrent changes in educational and employment opportunities. These broader contextual changes are associated with changes in family structures and are considered to have an important influence on Filipino adolescents and young adults as they attempt to reconcile differences in norms and attitudes between older and younger generations [14]. As compared to their parent's generation, young Filipinos are more likely to delay marriage, to choose cohabitation over formal marriage, and to engage in premarital sex. The mean age at marriage has increased for men - from 24.8 in 1980 to 26.5 years in 2007 – and for women – from 22.4 in 1980 to 23.8 in 2007 [15]. National survey data from 2002 indicate that 31% of men and 16% of women between the ages of 15 and 24 reported having premarital sex, an increase from 1994 levels [16].

Studies from the Philippines find earlier sexual initiation among boys, as compared to girls [17, 18] and differential determinants of the timing of sexual behaviors between young men and women [18-20]. One of these recent analyses from Metro Cebu found that 67% of men and 47% of women had sex before age 21, of whom 98% of men and 91% of women had sex before marriage [18]. Changes in sexual initiation signify broader social changes, as well as increased risk of pregnancy and STIs. In a nationally representative survey of young adults, only 15% of women and 28% of men reported that they used contraception during their first premarital sexual encounter and nearly 40%

reported using the withdrawal method which affords no protection against STIs and is less efficacious in preventing pregnancy as compared to other contraceptive methods [16].

These gendered patterns are mirrored by persistent norms regarding 'appropriate' sexual behavior for young men versus young women in the Philippines. Young men have greater freedom to express their sexuality and are more likely to engage in dating, pre-coital and sexual behaviors earlier than young women [19, 21]. Social norms for young women are more conservative and dictate that women are expected to be modest and chaste and should refrain from expressing interest in or knowledge about sex or contraception, especially before marriage[14]. The persistence of traditional norms surrounding sexuality and disapproval of premarital sex, particularly for young women, also aligns with the dominant ideology promoted by the Catholic Church, which has a strong social and political influence on reproductive health in the Philippines [22-24].

This study examines the effects of multiple, contextual influences on young adults' sexual debut in the Philippines, where ongoing restrictions on reproductive health services and drastic sociodemographic changes situate young adults in a particularly precarious position as they enter in to sexual relations and adulthood. Unique longitudinal and intergenerational data from adolescents and their mothers (1998-2009) are used to assess the independent and synergistic effects of multiple domains on adolescent lives – household characteristics, parental sociodemographic and marital characteristics, family and peer influences, and adolescents' own sexual attitudes and behaviors from 1998 – to predict sexual initiation by 2009.

Methods

Sample and procedures

Data for this study are derived from the Cebu Longitudinal Health and Nutrition Survey (CLHNS), a longitudinal study of Filipino mothers and their children born between May 1, 1983 and April 30, 1984. The study location, Metro Cebu, is the second largest metropolitan area in Philippines, located on the island of Cebu in the Central Visayas region. Further information on sampling and characteristics of the cohort are described elsewhere [25, 26]. This analysis focuses on data collected from mothers and their children – referred to as index children (ICs) in 1998 (when children were approximately 15 years old). The 1998 survey was the first survey in which adolescents were interviewed directly. ICs were followed as long as they remained in the survey and follow-up data was provided by the ICs in 2002, 2005, and 2009. The analytic sample is comprised of ICs who had not had sex prior to 1998 and who were living with their mothers at the time of the 1998 survey. 28 females and 1 male (2% of sample) were excluded based on their reports in the 2005 survey that their first sexual intercourse experience was "Something that happened against [their] will". (We did not have this measure available to us in the 2002 or 2009 surveys.) The final sample includes 1,781 mother-and-child pairs, including 838 girls and 943 boys.

Measures

Age at first sex. The outcome variable is age at first sex, as reported by the ICs in 2002, 2005, and 2009. Reports of first sex were abstracted for all ICs who participated in the 2009 survey; if absent or lost to follow-up by 2009, previous data points were used. Participants who had not had sex by 2009 were right censored at their age during the 2009 survey. For 5% of boys and 14% of girls, the

age at first sex was reported as occurring during the same year as marriage; therefore, their responses were right censored at age of marriage.

Household characteristics. The first block of variables includes household characteristics of the ICs in 1998: number of persons in the household, nuclear versus extended family household, household wealth, and an urbanicity score of the household's barangay. The household wealth index was constructed by conducting a principal component analysis using housing construction indicators and ownership of household assets (e.g., type of toilet, owns refrigerator, etc.)[27, 28]. The urbanicity scale was constructed following a modified version by Dahly and Adair of CLHNS data [29]. Principal component analysis was performed on five categories of variables relating to urbanization: population size, population density, communication infrastructure, availability of transportation, and presence of markets. Only the first component was necessary based on results of parallel analysis [30].

Mother's sociodemographic and marital characteristics. Mother's age, education, religiosity, number of living children, and presence of the IC's father in the household were included in the next set of variables. Religiosity was determined by church attendance, with mothers attending church at least once a week considered to be 'religious'. In addition, two measures of women's status found to be predictive of sexual debut among CLHNS adolescents in an earlier study [18] were included: whether the husband turned over all income to the mother and an interviewer-determined measure of whether the woman, her household, and her children were "well-kept", a locally developed measure of women's status (see [18] for further description). Mothers were considered high status if the interviewer indicated that any of these three were well-kept at the time of the interview.

Mother-child relationship. This set of variables included the mother's educational aspirations for the IC and the reported communication and closeness between the mother and IC. Mothers were coded as having high educational aspirations if they wished the IC to graduate from college. For the communication variable, if both mother and child separately reported they had discussed at least two of seven topics (covering issues such as friendships, sex, and family planning), then the pair was rated as having a high degree of communication. Similarly, if both mother and IC separately reported being close to each other, the mother-child pair was rated as being close.

Peer and family influences. This set of variables included: perception of friends' sexual behavior, having a sibling less than 20 years old in a romantic relationship or who had children, having a family member or friend working abroad and contributing to the household income, and a scale of the mother's reported adolescent behaviors. Perception of friends' sexual behavior indicated whether the IC reported at least one friend who had engaged in kissing or other sexual behaviors. Having a family member or friend working abroad and contributing to the household income was included in the income module for CLHNS participants; however, it is included in this analysis as a proxy measure for exposure to other global settings based on evidence from other studies indicating the importance of measuring the effects of external and/or global influences on adolescent sexual behavior [13]. Mother's reported adolescent behavior was a sum score (0-3) based on the mother's answers to 3 questions: if she had a boyfriend when she was 14-16 years old, if she had sex before she was 18 years old, or if she had engaged in premarital sex.

Young adult sociodemographic characteristics. This set of variables included age, completed education, educational aspirations, religion, religiosity, and media exposure. Educational aspiration was categorized as wanting to achieve at least a college education, or not. Religion was categorized as Catholic or not. Religiosity was categorized as indicated previously for the mothers. Media

exposure was determined based on how often the index child watches TV, listens to the radio, and reads magazines.

Young adult sexual attitudes and behaviors. This last set of variables was comprised of four variables: an index of the adolescent's attitudes regarding dating and marriage, a dichotomous measure of whether or not the child had heard of family planning, the child's perception of their mother's attitudes about sex, and whether or not the child reported engaging in any precoital behaviors. The index of adolescent attitudes was created by conducting a factor analysis on the child's answers to four questions regarding their perceptions on the appropriate age for young people to have crushes, court, date, and marry. The factor analysis was performed separately for male and female index children with higher index scores corresponding to more conservative attitudes. The IC's perception of their mother's attitudes about sex was determined based on three questions from the 1998 survey. Each adolescent was asked: (1) "Do you think your mother agrees that boys your age should not have sex yet?" (2) "Do you think your mother agrees that girls your age should not have sex yet?" and (3) "Do you think your mother agrees that only married couples should have sex?" If the child indicated that the mother agreed with all 3 statements, the child was coded as perceiving the mother "strongly disapproves". Finally, the child was coded as having engaged in precoital behavior if the child reported engaging in "kissing, holding hands, more than kissing, or petting".

Analysis

A separate series of Cox proportional hazards models and Cox regression models for males and females were conducted to predict the hazards of first sex. We first conducted bivariate analyses, then retained variables in the multivariate model that were significant ($p<0.10$) for either males or females. Wald tests confirmed fit of the full model. To evaluate the proportional hazards assumption of the models we performed tests of nonzero slope in a generalized linear regression of the scaled Schoenfeld residuals on time. Interactions were added to allow non-proportional variables to vary across time.

Results

In total, 98% of females and 81% of males had not had sex prior to 1998. Chi-squared tests and t-tests were first conducted to assess the differences between adolescents who had sex prior to 1998 (ages 14-16) and those who did not (Table 1). Boys who had sex prior to 1998 were older, had more siblings, were more likely to live in urban areas, to report communication with and have more educated mothers, to report sexual behaviors among their friends, to have more liberal attitudes regarding dating and marriage, and to report precoital behavior by 1998, as compared to boys who had sex after 1998. Girls who had sex before 1998 were older, had lower household wealth, more siblings, fewer years of completed education, less exposure to media, and had mothers who reported lower educational aspirations and more adolescent sexual behaviors, as compared to girls who had sex after 1998.

Of those that had not had sex prior to 1998, Table 2 depicts significant differences between male and female ICs. Female participants were significantly more likely to have younger mothers, mothers with more children, fathers who were present in the household, and mothers with higher educational aspirations for their children; however, they had mothers who were significantly less likely to be "well-kept" and with whom they reported to be close, as compared to male respondents. Females were also less likely to report friends who had engaged in sexual behaviors and mothers who reported adolescent sexual behaviors as compared to males; however, they were more likely to

report a sibling with a relationship/kids and a family member working abroad, as compared to male participants. Lastly, girls were also more likely to have higher educational aspirations, as well as higher levels of church attendance, media exposure, awareness of family planning, and perceptions that their mothers had more conservative attitudes regarding sex, as compared to boys.

Table 3 depicts the unadjusted and adjusted hazards ratios from the gender-stratified models predicting age at first sex. In total, and among the ICs in our analytic sample (had sex after 1998), 88 percent of boys and 70 percent of girls reported having sex prior to leaving the survey, with an average age at first sex of 18 years for boys and 20 years for girls (data not shown). As noted in Table 3, although some bivariate effects were attenuated in the multivariate models, there are significant effects across the variable domains.

In the full, multivariate models, males living in urban areas (HR: 1.05; $p \leq 0.05$) and in wealthier households (HR: 1.05; $p \leq 0.10$) had higher hazards of first sex, as compared to males living in rural areas and in poorer households, though the effects of household wealth were marginal.

Mothers' sociodemographic characteristics had significant, but disparate effects on the hazards of first sex among boys and girls. Mothers' higher education and mothers' older age were significantly associated with lower hazards of first sex among their daughters (HR: 0.97; $p \leq 0.05$ and HR:0.98; $p \leq 0.05$, respectively). In contrast, mothers' age was positively associated with higher hazards of first sex among boys (HR:1.04; $p \leq 0.05$). The mother's number of living children (siblings of ICs) was associated with higher hazards of first sex among their daughters (HR:1.08;$p \leq 0.05$); however, there was no effect on sons.

Mothers' educational aspirations were associated with lower hazards of first sex among their sons (HR: 0.75; $p \leq 0.01$); however, there was no significant effect for daughters. Mothers' and daughters' simultaneous reports of communication were associated with higher hazards of first sex among daughters (HR:1.27; $p \leq 0.05$), with no effect found for sons.

For both boys and girls, the perception of friends' sexual behavior was strongly and significantly associated with higher hazards of first sex (HR: 1.26; $p \leq 0.01$ and HR:1.46; $p \leq 0.001$, respectively). For boys only, a significant and positive effect was found for remittances to the household from a friend or family member (HR:1.31; $p \leq 0.01$). Although the presence of adolescent siblings in relationships or with kids, and mothers' reported adolescent behaviors were significant in the bivariate models, they did not persist in the multivariate models.

Significant effects of adolescent sociodemographic characteristics were found for boys only, with the exception of completed education and educational aspiration being associated with lower hazards of first sex for girls (HR:0.83; $p \leq 0.05$ and HR:0.79; $p \leq 0.10$, respectively). Although educational attainment was associated with lower hazards of first sex among boys (HR:0.90; $p \leq 0.01$), higher hazards of first sex were found among boys with higher educational aspirations (HR:1.17; $p \leq 0.01$) and Catholic boys (HR:1.39; $p \leq 0.05$). Higher levels of media exposure were also marginally associated with higher hazards of first sex among boys (HR:1.15; $p \leq 0.10$).

For both boys and girls, the report of any precoital behaviors by the 1998 survey was associated with significantly higher hazards of first sex (HR:1.45; $p \leq 0.001$ and HR:3.28;$p \leq 0.001$, respectively).

Lastly, girls with more conservative attitudes regarding dating, sex, and marriage had significantly lower hazards of first sex, as compared to girls with less conservative views (HR:0.82; $p \leq 0.001$).

Proportional hazards tests for individual covariates indicated that the hazards (risk) of first sex among boys associated with mothers' age and boys' completed education varied across the follow-up period and, for girls, the risk associated with completed education and reports of precoital behaviors. Time by covariate interactions were included and indicate (see Table 3) that although mother's age is positively associated with higher hazards of first sex, the effect of mother's age on the occurrence of first sex among decreases with time. In contrast, the time/education interaction for boys reveals that the effect of education on the initiation of sex increases with time. In the girls' multivariate model, the coefficients for completed education and precoital behavior are allowed to vary across time in the girls' multivariate model. The effect of reported precoital behavior significantly decreases with time in the girls' model, while the effect of education behaves similarly as in the boys' model.

Discussion

Overall, findings from this study indicate a constellation of household, peer and family, and individual sociodemographic characteristics that affect subsequent time to first sex among this cohort of Filipino young adults.

A key finding of this study is that gender-stratified models are not only justified, but are also essential. Similar to other studies from this setting, boys' and girls' sexual initiation were differentially influenced by household, family and peer, and individual sociodemographic characteristics [18, 20, 31]. In this analysis, differential effects were found not only in the hazards associated with our independent variables, but also in the effect or persistence of these hazards across time. Although the time/completed education interaction resulted in similar effects for both boys and girls, the inclusion of additional and separate interactions for boys (mother's age) and girls (precoital behaviors) indicates different predictors and risks over time associated with these predictors in the occurrence of first sex for boys and for girls.

Urban residence and household wealth were uniquely associated with boys' sexual initiation, a finding mirroring those of previous studies in this setting [18, 20, 31]. These findings indicate that specific influences or exposures in urban settings may hasten boys' initiation of sex, independent from other covariates. Evidence from the Philippines and other international settings point to the influences of urbanization, poverty, and changes in family structure that may reduce social support and facilitate greater engagement in risk behaviors and deviation from more conservative and traditional norms regarding sexuality [14, 31]. These influences may be particularly pronounced for Filipino boys who also have higher levels of engagement in non-sexual risk behaviors and higher likelihood of school dropout, as compared to Filipino girls [32, 33].

Also similar to Upadhyay [19, 20] was the finding of lower hazards of first sex among more educated boys and girls; however, this analysis also tested the effects of education on sexual initiation over time, finding that the protective effects of education increased similarly over the study period for both boys and girls. This finding also indicates that there are likely to be different forces affecting the risk of sex among the young adults who remain in the risk set for longer (i.e., those that remain abstinent). Further investigation could help to illuminate these different groups or 'types' of young

adults in the cohort, as well as to further explore the effects of predictors at several time points on the initiation of sex (see for example, [34]).

This analysis builds on past studies by testing additional theoretical constructs in the assessment of time to first sex among Filipino young adults. First, attitudinal measures of both the young adult and the mother were highly predictive of age at first sex. The mother's stated educational aspiration for her child was a significant predictor for boys' sexual initiation, whereas the measure of attitudes regarding appropriate ages for dating and marriage was significant for girls only. The number of mother's children (siblings of the IC) was also predictive of earlier sexual initiation among the girls. These combined findings are similar to studies from other settings indicating that parental expectations and childbearing practices may be transmitted intergenerationally to influence the childbearing norms and practices of their children, as well [10]. This latter finding has two, possible explanations: exposure to family size norms promoting larger families may have prompted the female ICs to engage in sex earlier to meet larger family size norms, and/or with more children in the household, the female ICs may have had less parental monitoring, thereby providing greater leniency and opportunity for sexual relationships [35].

Second, the measure of communication between mother and child had counter-intuitive effects, such that daughters from mother-daughter pairs who reported more communication in 1998 subsequently had higher hazards of first sex, as compared to daughters from mother-daughter pairs who reported lower levels of communication. One possible explanation is that girls who were already engaged in some dating and romantic experiences may have talked to their mothers about these experiences; however, this finding persisted in the multivariate model even after controlling for reports of precoital behaviors. Ideally, we would have additional information regarding the content and nature of the communication and interaction between mothers and daughters to explore this finding further.

A third, novel finding is that of higher hazards of first sex among boys who had a family member or friend working abroad and sending remittances to the household (HR:1.31; $p \leq 0.01$). This effect persists after controlling for household wealth and size, and controlling for father's presence in the household, indicating that this variable may be capturing exposure to other sexual and childbearing norms vis-à-vis friends' or family member's employment and residence in settings outside of the Philippines. This finding is similar to that from a recently-conducted study in four cities in Asia [13] and suggests that as world becomes increasingly interconnected, both economically and socially, that family members living and working abroad may influence their home families through both financial and "social remittances" [12, 36]. Given the large proportion of Filipinos working abroad (estimated at 10% of the population), further investigation is warranted to better understand these mechanisms, and specifically, why this effect was found only for boys and what this international exposure may be comprised of that results in higher hazards of sexual initiation.

A few caveats should be mentioned in the interpretation of these findings. First, the selection of the 1998 CLHNS survey provided the first direct reports of sexual attitudes and behaviors from the adolescents themselves. As such, and without direct reports from the ICs before 1998, we were unable to model hazards of sex for adolescents who had sex prior to 1998 (19% of the boys and 2% of the girls). We believe that this limitation is balanced, however, by the opportunity to incorporate independent variables, as reported by the adolescents themselves, that predict the subsequent outcome of occurrence of first sex. Similarly, if we had followed the cohort for a longer period of

time, we could more accurately model the 12% of boys and 30% of girls that did not report sex prior to 2009 (or to the last survey participation). An additional caveat is that while we modeled the occurrence of first sex, it is not uncommon that the first sexual experienced occurs against one's will. This is also true in the Philippines [16]. Although we were able to exclude participants who reported a forced, first sexual experience in the 2005 CLHNS survey, this question was only asked at this one timepoint.

Despite these considerations, this analysis provides a rather comprehensive analysis of an extensive set of individual-, family- and peer-level influences to predict the occurrence of first sex among a cohort of young Filipinos. Findings from this study corroborate and complement previous investigations from this setting and population, while also providing insight in to additional mechanisms underlying the occurrence of first sex among young Filipinos.

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Table 1: Comparing characteristics of adolescents that had sex prior to 1998 survey

Characteristics	Males		Females	
	1st sex before '98	1st sex after '98	1st sex before '98	1st sex after '98
Total Sample	182 (19%)	761 (81%)	15 (2%)	823 (98%)
Household Characteristics				
Urbanicity scale				
urbanpc1 (mean) (range: -4.5-4.5)	0.81*	0.45*	-0.02	0.46
Nuclear household (%)				
One nuclear family	68.7	72.1	46.7	69.9
Extended family household	12.1	12.6	20.0	15.2
Multi-nuclear family	19.2	15.2	33.3*	14.9*
Number of persons in household (mean) (range: 2-19)	6.8	6.8	7.3	7.0
Household wealth index (mean) (range:-2.6-7.18)	0.4	0.1	-1.3*	0.0*
Parental Sociodemographic and Marital Characteristics				
Mothers				
Education (mean years) (range: 0-19)	8.2*	7.4*	6.3	7.4
Age (mean years) (range: 29-62)	42.3	42.8	41.3	41.4
Religiosity: Attends ≥ weekly (%)	59.9	62.1	53.3	58.8
Number of mother's children alive in 1998 (mean) (range:0-6)	0.9***	0.6***	2.7***	0.8***
Marital Characteristics				
Presence of father in household (%)	88.5	87.1	100.0	90.3
Husband turns over all income to wife (%)	62.6	62.0	66.7	59.3
Status of the mother (well-kept) (%)	76.4	68.6	20.0	39.4
Mother-Child Relationship				
Mother's educational aspiration for child: ≥ college graduate (%)	70.3	64.5	46.7**	77.8**
Closeness between mother and child (%)	83.0	84.5	73.3	77.6
Communication between mother and child (%)	26.4***	15.4***	33.3	17.9
Peer and Family Influences				
Perception of friends' sexual behavior: ≥ kissing (%)	59.3***	35.5***	33.3	19.0
Household member <20 relationship (%)	33.0	26.5	53.3	30.9
Family member working abroad (%)	54.4	55.6	66.7	58.0
Scale of mother's reported adolescent behaviors (mean) (range: 0-3)	1.2*	1.1*	1.5*	0.9*
Adolescent Characteristics				
Sociodemographic				
Age at 1998 survey (mean years) (range: 14-16)	15.7**	15.6**	14.6*	14.4*
Completed education (mean years) (range: 0-11)	7.7	7.7	6.9*	7.8*
Educational aspiration: ≥ college graduate (%)	72.0	67.9	73.3	85.7
Religion: Catholic (%)	95.0	94.7	100.0	0.96
Religiosity: Attends ≥ weekly (%)	62.6	58.8	60.0	71.7
Media exposure index (mean) (range: 0-4)	3.3	3.2	3.1*	3.4*
Sexual Attitudes and Behaviors				
Attitudes regarding dating and marriage index (mean) (range: -2.7-6.0)	-0.2***	0.1***	-0.1	0.0
Has heard of family planning (%)	65.4	64.1	80.0	80.8
Perception of mother's attitude re: sex (strong disapp.) (%)	84.1	88.8	100.0	96.8
Any reported precoital behavior (%)	60.4***	30.7***	46.7	25.3

Difference between adolescents reporting first sex prior to 1998 survey and those reporting first sex after 1998 survey is significant at: ***p≤0.001; ** p≤ 0.01; * p ≤ 0.05;

Table 2: Characteristics of households, families, and adolescents, according to sex, Cebu, Philippines, 1998-2000 CLHNS Survey

Characteristics	Total no. (%)	Males	Females
Total Sample	1584 (100%)	761 (48%)	823 (52%)
Household Characteristics			
Urbanicity scale			
urbanpc1 (mean) (range: -4.5-4.5)		0.5	0.5
Nuclear household (%)		72.1	70.0
One nuclear family		12.6	15.2
Extended family household		15.2	14.9
Multi-nuclear family			
Number of persons in household (mean) (range: 2-19)		6.8	7.0
Household wealth index (mean) (range:-2.6-7.18)		0.1	0.0
Parental Sociodemographic and Marital Characteristics			
Mothers			
Education (mean years) (range: 0-19)		7.4	7.4
Age (mean years) (range: 29-62)		42.8	41.4 ***
Religiosity: Attends ≥ weekly (%)		62.2	58.8
Number of mother's children alive in1998 (mean) (range: 0-6)		0.6	0.8 ***
Marital Characteristics			
Presence of father in household (%)		87.1	90.3*
Husband turns over all income to wife (%)		62.0	59.3
Status of the mother (well-kept) (%)		68.6	39.4 ***
Mother-Child Relationship			
Mother's educational aspiration for child: ≥ college graduate (%)		64.5	77.8 ***
Closeness between mother and child (%)		84.5	77.6 ***
Communication between mother and child (%)		15.4	17.9
Peer and Family Influences			
Perception of friends' sexual behavior: ≥ kissing (%)		35.5	19.0 ***
Household member <20 relationship (%)		26.5	31.0 *
Family member working abroad (%)		55.6	58.1 **
Scale of mother's reported adolescent behaviors (mean) (range: 0-3)		1.1	0.95 *
Adolescent Characteristics			
Sociodemographic			
Age at 1998 survey (mean years) (range: 14-16)		15.6	14.4 ***
Completed education (mean years) (range: 0-11)		7.7	7.8
Educational aspiration: ≥ college graduate (%)		69.9	85.6 ***
Religion: Catholic (%)		94.7	95.5
Religiosity: Attends ≥ weekly (%)		58.9	71.7 ***
Media exposure index (mean) (range: 0-4)		3.2	3.4 ***
Sexual Attitudes and Behaviors			
Attitudes regarding dating and marriage index (mean) (range: -2.7-6.0)		0.1	0.0
Has heard of family planning (%)		64.1	80.8 ***
Perception of mother's attitude re: sex (strong disapp.) (%)		88.8	96.8 ***
Any reported precoital behavior (%)		30.7	25.3 *

Difference between males and females is significant at: ***p≤0.001; ** p≤ 0.01; * p ≤ 0.05;

Table 3: Unadjusted and adjusted hazards ratios of CLHNS index children having sex by 2009 (age ~25), by sex and household, parental, individual characteristics, Cebu, Philippines

	Unadjusted Models		Full Model	
	Males	Females	Males	Females
Household Characteristics	N=761	N=823	N=761	N=823
Urbanicity	1.05**	1.01	1.05*	1.03
Extended family household				
Extended family household	0.98	0.87	-----	-----
Multi-nuclear household	1.11	1.06	-----	-----
Number of persons in household	0.99	1.00	1.00	0.94
Household wealth	1.03†	0.96*	1.05†	1.01
Parental Sociodemographic and Marital Characteristics				
Mothers				
Education (years)	1.00	0.97**	0.98	0.97*
Age	0.99*	0.99	[1]1.04*	0.98*
Religiosity: Attends ≥ weekly	1.05	0.86	-----	-----
Number of mother's children alive in 1998	0.98	1.03†	0.97	1.08*
Marital Characteristics				
Presence of father in household	0.90	0.95	-----	-----
Husband turns over all income to wife	0.87	0.99	-----	-----
Status of mother (well-kept)	0.95	0.89	-----	-----
Mother-Child Relationship				
Mother's educational aspiration for child	0.94	0.71***	0.75**	0.88
Closeness between mother and child	1.05	0.83†	1.03	0.95
Communication between mother and child	1.23**	1.39**	1.12	1.27*
Peer and Family Influences				
Perception of friends' sexual behavior	1.38***	1.86***	1.26**	1.46***
Household member <20 relationship	1.15*	1.25*	1.11	1.12
Family member working abroad	1.29**	1.16	1.31**	1.17
Scale of mother's reported adolescent behaviors	1.04	1.15**	1.01	1.08
Adolescent Characteristics				
Age	1.08	1.05	1.19*	1.10
Completed education	1.01	0.90***	[1]0.90**	[1]0.83**
Educational aspiration	1.08	0.63***	1.17†	0.79†
Religion	1.34*	1.26	1.39*	1.33
Religiosity	1.00	0.91	0.94	0.88
Media exposure	1.17*	1.09	1.15†	1.13
Sexual Attitudes and Behaviors				
Attitudes regarding dating, sex, and marriage	0.90*	0.75***	0.99	0.82***
Has heard of family planning	1.03	0.79*	0.98	1.02
Perception of mother's attitudes re: sex (strong disapp.)	0.87	1.17	-----	-----
Any reported precoital behaviors	1.62***	1.85***	1.45***	[1]3.28***
Time-varying Coefficients				
Mother's age × time			0.99***	
IC's completed education × time			1.03***	1.03*
IC's reported precoital behaviors				0.86***

***p≤0.001; ** p≤ 0.01; * p ≤ 0.05; †p≤ 0.10

[1] Hazards associated with time=0 (1998 survey)