

**THE DETERMINANTS OF THE PROGRESSION TO FIRST SEX
AMONG ADOLESCENTS IN CEBU, PHILIPPINES**

by

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A dissertation submitted to Johns Hopkins University in conformity with the
requirements for the degree of Doctor of Philosophy

Baltimore, Maryland
April 2006

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Dissertation Abstract

Purpose: This dissertation examines the determinants of adolescent sexual behaviors leading up to and including first sex in Cebu, Philippines, with a focus on peer and parental-related influences.

Methods: This research follows a cohort of about 2000 Filipino adolescents from 1994 at ages 9-11, until 2002 at ages 17-19. First, the tempo and timing of emotional relationships and physical behaviors up to first sex are described. Second, survival analyses assess whether adolescents' perceptions of friends' sexual behaviors, measured at ages 14-16, increase the hazard of having first intercourse by ages 17-19. Third, survival analyses examine the effects of marital conflict and women's status, measured in 1994 and 1998, on age at first sex by ages 17-19. All analyses are done separately by sex.

Results: First, after adolescents begin courting, romantic relationships, and dating, several years pass before they have sex; this delay is longer for girls than boys. Fast pace of emotional relationships is a significant predictor of younger age at first sex among girls (HR=1.48, $p=0.009$), but not among boys.

Secondly, perceptions of friends' behaviors significantly affect the behaviors of both boys and girls several years later. For each additional behavior an adolescent perceived his/her friends to be engaging in, the hazard of having sex at a younger age increased by 1.15 ($p=0.02$) among boys and by 1.19 ($p=0.002$) for girls.

Thirdly, for each decision in which fathers have final say age at first sex is significantly younger among boys (HR=1.09, p=0.02). Having a mom whose marital status changed in early adolescence was also associated with a younger age at first sex for both boys (HR=1.46, p=0.04) and girls (HR=2.35, p≤0.001). Girls whose mothers scored highly on a locally defined rating of women's status were less likely to have sex at a younger age (HR=0.64, p=0.02).

Conclusions: These findings demonstrate that adolescents in the Philippines are having premarital sex. Girls and boys are on different trajectories but both have immediate reproductive health needs. Recognizing the influence of peers and parents and understanding how adolescents make decisions about sexual behavior will help inform the design of reproductive health interventions.

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Acknowledgements

I owe this achievement to my advisor, Dr. Michelle J. Hindin. Throughout my doctoral training, she has been encouraging and supportive every step of the way, believing in the value of my work even on my most discouraged days. More than an academic advisor, Michelle has been a guide to me for many of life's hurdles, large and small. She is deeply concerned about her students' well-being and is at all times ready to lend a supportive ear. She has always been approachable and accessible, responding in detail to my complex statistical questions over e-mail, reading drafts of my papers on weekends and holidays, and encouraging me to stop by for a face-to-face chat. Dr. Hindin's enthusiasm and interest in adolescents and reproductive health is contagious and it was through her that I received this wonderful opportunity to work on the Cebu Longitudinal Health and Nutrition Survey data for my dissertation.

I appreciate all of the insightful comments I received from the members of my Final Oral Doctoral Committee: Michelle J. Hindin, David Bishai, Barbara Curbow, and Vivian Go. Each went through great lengths to read my dissertation and gave me stimulating comments and questions that helped improve the final papers.

Since my initial research proposal, Dr. Bishai always had thought-provoking questions that challenged me to go just a little further in my thinking. I am also appreciative to Socorro (Connie) Gultiano at the Office of Population Studies (OPS), University of San Carlos, Philippines for answering questions about Filipino customs and culture and for providing insightful comments on my work. She and her staff at OPS stand as a model for diligence and excellence in survey research; it was my honor to work with them.

Although her title is Academic Coordinator, Linda Adams' official title should be A Shoulder to Lean On. She helped prevent me from slipping between the cracks. She was a good friend to me throughout the years, always checking on me to make sure I was still on track and giving me practical advice when I was feeling about to derail. Also at the School of Public Health, I am grateful for the camaraderie and friendship given to me by my Doctoral colleagues, Jaya, Deborah D'Souza-Vazirani, Sonia Singh, and Jessica Gipson.

I cannot think back on my doctoral experience without appreciating how much my work at the INFO Project at the Center for Communications Programs has complimented my learning process. My time at work was just as, if not more, educational than my time in the classroom. I am appreciative to Ward Rinehart, Richard Blackburn, and all of my colleagues for giving me all of the flexibility and understanding I needed to pursue a Doctoral degree while continuing to work full time. The creative and innovative culture of the Editorial Division has made it a privilege and a pleasure to write for *Population Reports*.

A special thanks to my colleagues and friends: Vera Zlidar for always being available to discuss the most outlandish and stimulating research questions and Vidya Setty for reading drafts of my papers and helping me think through causal pathways. I will always remember my former editor and current mentor, Bryant Robey, for being vested in my professional development and grooming me into the person I am. He has always pushed me to use the active voice, to meet my deadlines, and most importantly, to stand for my principles.

I am grateful to my friends, Anna Demeo, Ketan Joshi, Anita Mallya, Jane Runnels, and Melindah Sharma for being interested in and supportive of my doctoral work and more importantly, for dutifully distracting me from my schoolwork whenever I needed a break.

The journey of my degree would not have been the same if it weren't for Khandoo and Urmila Nagar in Dallas, Texas. More like another set of parents than in-laws, they always provided the encouragement I needed to get through the next exam or paper. Without fail they would send me back to Baltimore with lots of food for the weeks ahead when I wouldn't have time to go grocery shopping. Ever since I've known them, they have checked in on me every few days to see what I needed or how they could help.

My siblings have always been a great part of my education. In childhood and through adolescence we endured and overcame great challenges and it was only because we faced them jointly. We always knew we had one another, for advice, to confide in, to dream with, to play with, for protection. Our parents taught us that these are the only brothers and sisters we will ever have and that we were better off colluding with one another than fighting each other. Svapana taught me how to confront new challenges of life bravely and without complaint. Urmen taught me the importance of appreciating every one of life's moments, capturing them in memory, and making each an opportunity to become the wiser. Even in his short life, Kalpen's inquisitiveness and love of science inspired me to explore subjects that never came naturally to me.

I am fortunate to have a mother who values education with every fiber of her being. I remember too well when I was in elementary school, night after night, helping

her read the words of her marked-up dissertation aloud, as she retyped the next draft, key-by-key, into a typewriter. She instilled in me a desire to achieve as much as was possible in my field, and the drive to work hard for what I wanted. To her I will always be grateful.

To the one who is probably just as exhilarated as I am about the completion of this degree—my partner and husband, Udit Nagar. From the first discussion of whether I should enter the Doctoral Program in 2000, he has been a source of strength and encouragement. Whether near or far, he struggled with me every step of the way. I am appreciative to him for knowing when to be a slave-driver, pushing me to work when I tried to wiggle out of it, and for knowing when to be a savior, whisking me away at the slightest sign of a mental meltdown. He offered endless amounts of resilience, reassurance, and comfort in the final and most tumultuous months of the process. I am fortunate to have had him throughout this journey and look forward to all of the adventures we have to come.

Of course, the findings of this work could never have evolved if it weren't for the generosity of the thousands of mothers and their children who have participated in the Cebu Longitudinal Health and Nutrition Survey since 1983-84. They open their homes and their hearts and allow researchers to ask probing questions about their personal lives every few years. Their participation in the Cebu Longitudinal Health and Nutrition Survey has already made a great contribution to public health and as the data continue to unfold that contribution will bring great returns for many generations to come.

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Chapter 1: Introduction

A. Background

Around the world, more and more adolescents are becoming sexually active at younger ages (Blanc & Way, 1998; Han, Choe, Lee, & Lee, 2001; Isarabhakdi, 1999; National Research Council, 2005; Zulkifli & Low, 2000). Premarital sexual experience has become more common, as the age at puberty has fallen and age at first marriage has risen (Blanc & Way, 1998; Graham, Larsen, & Xu, 1999). As a result, young people are sexually mature for a longer period of time prior to marriage.

The reproductive health of adolescents in developing countries urgently requires greater attention. Young people are particularly at risk of HIV and other sexually transmitted infections (STIs) as well as unintended pregnancy because of risky behavior, drug use, and lack of access to health information and services. Half of all new HIV infections are among people ages 15 to 24 and currently, about one-third of all people with HIV are among young people ages 15 to 24 (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2003). In addition, worldwide, women aged 15 to 19 give birth to roughly 17 million of the 131 million children born each year. In an analysis of DHS data from 50 countries, an average of 23% of adolescent women, including both married and unmarried women, have given birth or are pregnant. Early childbearing can be especially risky in areas where anemia and malnutrition are common and where access to skilled obstetrical care is poor (Zlidar, Gardner, Rutstein, Morris, Goldberg, & Johnson, 2003).

Adolescents (ages 15-24) make up almost 18% of the total world population. There are almost 1.2 billion adolescents in the world today, more than ever before and almost 85% of them live in developing countries (Population Division of the Department

of Economic and Social Affairs of the United Nations Secretariat, 2005; World Bank, 2005).

Nevertheless, the majority of the existing knowledge of this transitional period is from developed countries. Too little is understood about the context in which young people in developing countries participate in sexual activity. Understanding the influences on adolescent sexual behavior is vital to preventing these harsh consequences of early and risky sexual activity. This study endeavors to understand several of these influences, including peers, parents and family environment.

B. Specific Aims and Research Questions

This research explores the determinants of the progression to first sex among adolescents in Cebu, Philippines with the following 3 specific aims:

Aim 1: To explore the pre-coital sexual experiences of Filipino adolescents, including the first crush, first date, first relationship, holding hands, kissing, petting, and first sexual intercourse.

- a. The study tests the following hypotheses:
- b. The prevalence and timing of precoital behaviors will differ between boys and girls.
- c. Most adolescents will follow a consistent order in the pattern of precoital behaviors.

Going through precoital behaviors quickly, called fast tempo, increases the risk of having sex at a younger age.

Aim 2: To explore how perceptions of friends' behaviors influence age at first sex in Cebu, Philippines.

The study tests the following hypotheses:

- a. Adolescents who report that their friends are engaging in romantic and physical behaviors in 1998-2000 are more likely to be engaging in those behaviors by 2002 than adolescents whose friends are not engaging in romantic and physical behaviors.
- b. The more behaviors adolescents perceive their friends to be engaging in, the more likely they are to have had sex at an earlier age, controlling for parental attitudes, their own progression through romantic and physical behaviors, and other possible confounders.

Aim 3: To explore the effect of marital relationships and women's status among parents on their adolescent children's age at first sex.

The study tests the following hypotheses:

- a. Adolescents whose parents have a more harmonious relationship marked with more joint decision-making and more stability are more likely to have first sex at an older age than adolescents whose parents have a less harmonious relationship.
- b. Adolescents whose mothers have higher status are more likely to have sex at an older age than adolescents whose mothers have lower status.
- c. The associations between women's status, marital relationships and age at first sex are different for male and female children.

C. Dissertation Overview

This dissertation is organized in manuscript format. The first chapter is an introduction to the current research. It provides the rationale for the research, research aims, and specific hypotheses of the study. Chapter 2 reviews the literature on adolescents and their sexual behavior globally and in the Philippines. Additional literature specific to each research aim is included in the corresponding manuscript chapter. Chapter 3 describes the conceptual framework and the methodology used for this study, including an overview of the Cebu Longitudinal Health and Nutrition Survey, a description of the study sample, a summary of the survey rounds.

Chapter 4 addresses Aim 1 above and includes a manuscript that, entitled, “Before First Sex: Gender Differences in Emotional Relationships and Physical Behaviors Among Adolescents in the Philippines.” This paper describes the precoital activities of 2,051 adolescents ages 17 to 19 in Cebu, Philippines. Kaplan-Meier plots are used to examine the timing and tempo of the behaviors and bivariate analyses and multivariate hazards models are employed to examine the characteristics associated with age at first sex.

The results show that girls experience emotional relationships at earlier ages than boys do but boys progress through them at a faster pace than girls ($p \leq 0.001$). After adolescents begin courting, romantic relationships, and dating, there are several years before they have sex and this delay is longer for girls than boys. Boys engage in physical behaviors and sex at earlier ages than girls. Fast pace of emotional relationships is a strong predictor of younger age at first sex among girls ($HR=1.48, p=0.009$), but not among boys. Boys who have few emotional relationships are less likely to have sex at a younger age ($HR=0.12, p \leq 0.001$).

Chapter 5 addresses Aim 2 and includes a manuscript entitled, “Do Perceptions of Friends’ Behaviors Affect Age at First Sex? Evidence from Cebu, Philippines.” This paper explores the effect of perceptions of friends’ romantic and physical behaviors on adolescent sexual activity in Cebu, Philippines. It uses data from 1,943 adolescents in Cebu, and employs logistic regression and proportional hazards analysis to assess whether adolescents’ perceptions of friends’ sexual behaviors, as measured at ages 14 to 16, increased the odds of having first intercourse, and the hazard of having first intercourse by ages 17 to 19. The results show that boys and girls who perceived that their friends had ever had boyfriends/girlfriends, dated, held hands, kissed, petted or had sex at ages 14 to 16 were significantly more likely to be engaging in that behavior by ages 17 to 19. For each additional behavior an adolescent perceives his or her friends to be engaging in, the hazard of having sex at an earlier age increases by 1.15 ($p < 0.017$) among boys and by 1.19 ($p < 0.002$) for girls even after adjusting for mother’s disapproval of premarital sex and other factors.

Chapter 6 addresses Aim 3 and includes a manuscript entitled, “Marital Relationships and Women’s Status: Intergenerational Effects on Adolescents’ Age at First Sex.” This paper examines marital relationships and women’s status and their effects on the age at which their children have their first sexual experience. The analysis includes a sample of 933 boys, 858 girls, and their mothers. Using proportional hazards analysis to assess time to age at first sex, the analysis found that for each decision in which fathers have final say, as reported by surveyed mothers, age at first sex is significantly younger among boys ($HR = 1.09$, $p = 0.02$). Having a mom whose marital status changed in early adolescence was also associated with a younger age at first sex for

both boys (HR=1.46, p=0.04) and girls (HR=2.35, p<0.001). Girls who had mothers who scored highly on a locally defined rating of women's status were less likely to have sex at a younger age (HR=0.64, p=0.02). A gender interaction analysis based on a model that includes both girls and boys revealed that the hazards ratios for urban, the locally defined measure of women's status, and for husband turning over all of his income to his wife are significantly different between girls and boys.

Chapter 7 is the concluding chapter of the dissertation, providing a summary of the results, a discussion of the limitations and strengths, and recommendations for future research. The conclusion synthesizes dissertation findings and explores potential implications for reproductive health programs and policies.

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Chapter 2: Literature Review

A. Adolescent Development

What is Adolescence? Adolescence is a transitional period in human development between puberty and adulthood. Defined by the World Health Organization as those between the ages of 10 and 19, adolescence in the developing world is gaining attention.

The life stage of adolescence is a unique and vital developmental period, a point of biological transition, identity formation, and developing autonomy (Gage, 1998). Historically, the period of adolescence emerged with industrialization and global economic change. Enormous increases in non-farming populations, in the size of urban centers, and in the reach of the media has brought with it a new stage of life when people are no longer children but not yet adults. These changes allowed young people to pursue an education on a full-time basis, and new state policies for universal enrollment have supported this social change (Xenos, 1998). The way to occupational success in the modern sector was to remain in school and subsequently obtain the right kind of job. In contrast to earlier times, now the major obstacles to occupational success are marrying and/or becoming parents too soon (Caldwell, Caldwell, Caldwell, & Pieris, 1998). The quality of adolescents' futures depends largely on the extent to which they take advantage of such opportunities for personal growth, as going to school and being employed, while avoiding the potential outcomes of unwanted sex, unintended pregnancy or STI infection (Bongaarts & Cohen, 1998).

Throughout puberty adolescents undergo significant physical, psychological, and cognitive developmental changes, in part due to hormonal changes and physical development, but also due changes in their social environment (Keating, 1993). The

physical changes include the growth spurt, the further development of the gonads, the development of secondary sex characteristics, changes in body composition, and changes in circulation and respiration (Steinberg, 2002). Puberty impacts adolescent behavior in several ways. First, puberty entails biological changes that have a direct impact on behavior, such as an increase in testosterone which increases sex drive and sexual behavior among boys or changes in hormone levels which may affect mood in girls. Second, biological changes impact self-image which will affect how the young person behaves, for example adolescents may be more private or modest when it comes to dressing or bathing. Thirdly, puberty will affect an adolescent's appearance which in turn will affect how other people interact with them, thus influencing how the adolescent behaves in response (Steinberg, 2002).

Adolescence is also associated with the development of mental abilities, including abstract thinking, and problem solving. According to Piaget, adolescents tend to focus more on themselves, what he termed "adolescent egocentrism" and often feel that their thoughts are unique and not understood by others (Piaget, 1954). It is a period of identity formation and the struggle for independence, or autonomy (Erikson, 1968; McElhaney & Allen, 2001). As adolescents move towards independence, they tend to experiment and test limits, including practicing risky behaviors. Thus the decisions adolescents make are deeply embedded in their view of the self, of relationships to others, and of the society and the world (Keating, 1993).

In terms of development, early sexual experiences signal an important dimension of the transition from childhood to adulthood, either because they occur at the time of marriage or because they bring with them opportunities for further emotional and

relational development (National Research Council, 2005). Adolescents need support throughout this period experiential learning. In many societies, schools, parents, and other institutions are silent on issues of sexuality during a time when adolescents need information and guidance most. Recognizing this period and understanding the way adolescents make choices will inform the design of more appropriate reproductive health interventions for their realities.

Adolescent sexual behavior is not in itself risky. Countering the common belief that sexuality in adolescence is dangerous and problematic, Chilman suggests that sexuality should be considered a normal part of healthy adolescent development. While interventions should focus on reducing risks that young people face, all adolescent sexual activity should not be categorized as risky (Chilman, 1990). More threatening to young people is unplanned, unprotected, and unwanted sexual behavior which too often leads to unwanted births and sexually transmitted infections.

B. Research Setting

The Philippines is comprised of 7,100 islands lying between the South China Sea and the Pacific Ocean. In recent decades the country has undergone drastic development and modernization. The Philippines has a highly skilled labor force with strong computer and technological skills. With 63% of the country living in urban areas, fast-paced population growth and rampant urbanization represent some of the major population concerns in the Philippines (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2005). Despite a rapidly growing population, the economy of the Philippines has performed relatively well in the midst of

the Asian financial crisis. Gross Domestic Product is growing about 6% annually (World Bank, 2005) ensuring abundant economic opportunities in urban areas for adolescents and adults alike.

With a higher population growth rate than many other Asian countries at 1.6%, its population of 83 million in 2005 will grow to 127 million people by 2050, making it the 12th most populated country in the world (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2005). Its total fertility rate is 3.22 children per women and all method contraceptive prevalence is high for a developing country, at 49% of women of reproductive age. One third of contraceptive use is of fertility-awareness based methods, (including periodic abstinence and withdrawal) used by almost 16% of Filipino couples. Additionally, 13% of women use the pill and 11% rely on female sterilization. High fertility-awareness based method use is primarily due to the predominance of Catholicism (National Statistics Office (Philippines) & ORC Macro, 2004).

Since the first case of HIV infection in the Philippines was reported in 1984, prevalence rates of HIV remain inexplicably low, despite the presence of traditional risk factors, such as a large sex worker population, high rates of sexually transmitted infections, and low condom use. By the end of 2003 9,000 people, less than 0.1% of the Filipino population were living with HIV (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2004). All of the collective HIV/AIDS surveillance data in the Philippines support the basic conclusion that extensive transmission of HIV has not occurred, even within the highest HIV risk groups (Morisky, Detels, Tiglao, Ang, Coly, & Tzui, 2003). The reasons that HIV rates have remained low are not known for certain

(Bosch, 2003), but some have speculated that low intravenous drug use among sex workers, the ability to diagnose and treat STIs at an early stage, (Morisky, Detels, Tiglao et al., 2003) delayed initiation of sexual activity, and low levels of premarital sex have contributed to low HIV rates (Bosch, 2003).

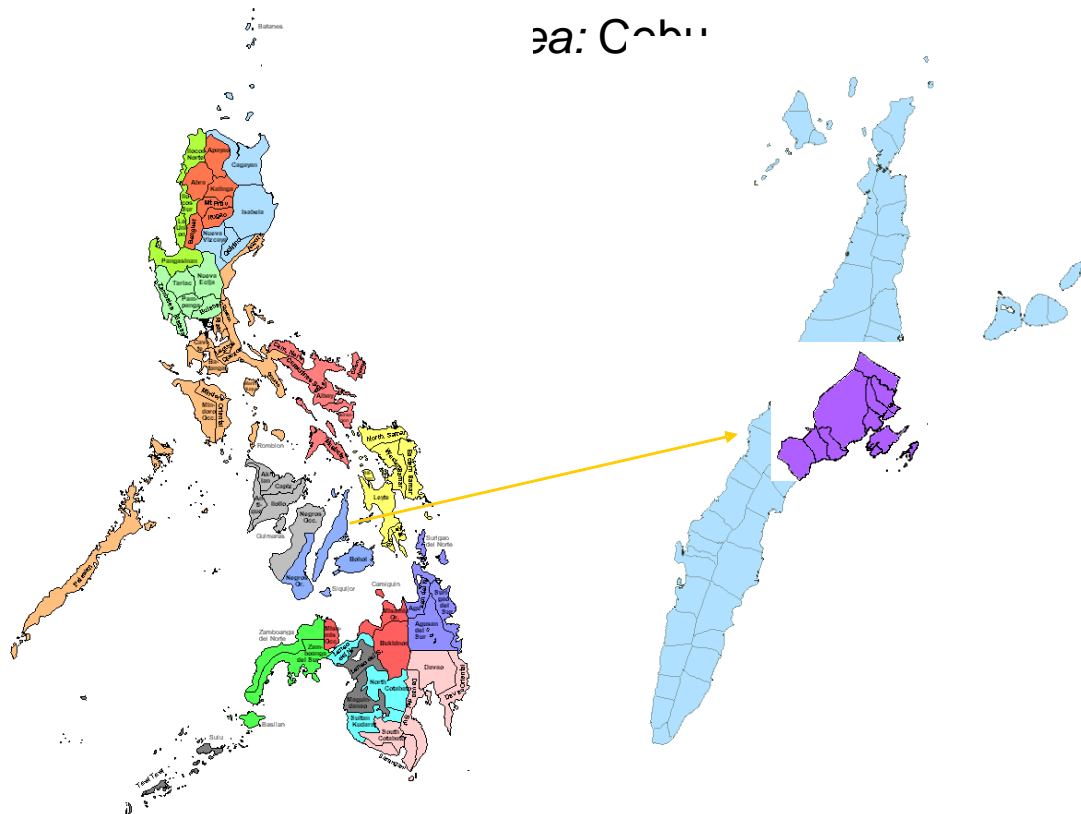


Figure 2.1: The Philippines is comprised of 7,100 islands lying between the South China Sea and the Pacific Ocean. Cebu is located in the Central Visayas region.

Cebu is an island province of the Philippines located in the Central Visayas region. Its capital is Cebu City and is composed of Cebu Island plus neighboring small islands. Cebu is one of the most developed provinces in the country. The metropolitan area of Cebu City is second only to Metro Manila in population. Nevertheless, it trails behind national averages in many areas.

Table 2.1 Comparison of Cebu and the Philippines, by selected characteristics, 2000.		
	Cebu	Philippines
Population	2,377,588	76,498,735
Median age	20 years	21 years
Sex ratio	101.0	101.4
Average number of children per woman	3.05	2.82
Percentage of households with electricity	61	68
Percentage of households with trash disposal by truck	14	32
Percentage of households with a community water system	41	47
Percentage of households owning a TV set	40	53
Percentage of households owning a phone or mobile phone	8	14

Source: Philippine Census 2000

C. Gender Roles in the Philippines

Women enjoy a unique status in the Philippines. Compared with other countries in Asia, the Philippines is distinctive in that there is particular recognition of the value of women in the family and in society. In the Philippines, social norms allocate a high degree of power to women. Filipina women have greater autonomy than women in the rest of Asia and elsewhere in the developing world (Mason, 1997), a position held since the pre-Spanish era when customary laws gave women the right to be equal to men, to own and inherit property, or to engage in trade (Alcantara, 1994; Medina, 2001).

Many educational and labor statistics confirm equity between men and women. According to 2000 estimates the adult illiteracy rate is about 5% for both women and men. The net primary enrollment rate (proportion of people in the age group that attend primary school) is 93% for girls and 92% for boys. The net secondary enrollment rate is 57% for girls and 48% for boys. Women make up 38% of the workforce and female and male unemployment rates are similar at about 10% (World Bank, 2003). Most working

women are employed in the services sector (61%), but some also work in agriculture (27%), and industry (13%). Most working men work in agriculture (47%) but smaller proportions work in services (36%) and industry (18%) (World Bank, 2003).

Despite reasonable equity at the national level, many individual women don't fare well. For example, intimate partner violence (IPV), remains a serious societal problem (Medina, 2001). A 1998 study in Southern Philippines found that 25% of women reported having been physically harmed, and the abuser was most likely to be the woman's husband (Barnett & Stein, 1998). Studies have also shown that violence is even more prevalent among more autonomous women. In Cebu, Philippines, while prevalence of IPV was 13% among all women surveyed in a community based sample, 6% of women reported IPV when all household decisions were made jointly compared with 25% when no decisions were made jointly (Hindin & Adair, 2002). Such inequities carry over to the adolescent population as well, where girls are held to different standards of behavior than boys (See Adolescent Sexual Behavior in the Philippines, page 9).

D. Adolescents in the Philippines

Young people ages 15 to 24 make up over 20% of the total Filipino population (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2005). It is estimated that the number of adolescents will grow from 16.8 million in 2005 to 19 million in 2020, when the adolescent population size will peak. The median age at menarche in Cebu, Philippines is 13 years of age (Adair, 2001). Mean age at marriage is rising, and currently stands at 26 for men and almost 24 for women; thus the period between sexual maturation and marriage is lengthening (UNFPA, 2003).

National data reveal that a majority of adolescents are still in school. In 2002, 48% of adolescents ages 15-24 were students, 22% were employed, 9% were unemployed, and 21% were not studying or working. Among males, 46% were students, 30% were working, and 24% were not working or studying. Among females, 48% were students, 16% were working, and 37% were not studying or working. Unmarried daughters in the Philippines make a substantial contribution to family income thus they tend to marry later than young women in other Asian countries (Raymundo, 2003). Formal education usually involves 14 years of schooling with students completing college by age 20, on average (Laguna, 2001). The main reason male and female adolescents drop out of school is for the financial incentives of working (Laguna, 2001).

Labor force participation rates of adolescents are declining, as more adolescents are staying in school, rather than joining the labor force. In the Philippines between 1950 and 1990 the proportion of boys ages 15-19 working in the labor force declined from 87% to 47%. In the same years, the proportion of girls ages 15-19 in the labor force declined from 61% to 31% (Xenos, 1998). This may be due to fewer economic opportunities or incentives to leave school early given the shift away from agriculture in the national economy.

Filipino adolescents straddle two cultures: an older traditional one representing stability, and a new, modern one signifying change (Santa Maria, 2002). Families are increasingly nuclear yet extended family members usually live close and young people see relatives often. Young people are socialized to place high value on family solidarity. They commonly believe that close warm ties among family members must be maintained and that sacrifices must be made for the good of the family (Santa Maria, 2002). In the

social development of children, parents teach them “pakiramdam” or sensitivity to others’ feelings. Children are the center of families and much of the family’s preoccupations are focused on the child (Santa Maria, 2002).

With modernization and increasing urbanization, however, youth are spending less time with parents and family and gaining more autonomy (Santa Maria, 2002). They spend more time in malls, coffee shops and other commercial establishments and using technological innovations, such as the internet, e-mail and mobile phones than any previous generation of young people (Laguna, 2001). When students drop out of school, they are more likely to leave home. In 2002 almost half of young people have lived away from home (Raymundo, 2003) . Adolescents are one and half times more mobile than the general population, searching for jobs and other economic and educational opportunities (Raymundo, P.Xenos, & Domingo, 1999).

The adolescent years mark a period when the differential treatment of sons and daughters becomes more pronounced. In the Philippines boys are generally allowed more freedom and can go out and come home late, while girls are more “restricted and protected” (Medina, 2001).

Young women, however, are now experiencing a greater level of social and economic autonomy and have more choices. Young unmarried females are the most likely to move from rural to urban areas and are now socialized to be independent in their activities even before marriage (Santa Maria, 2002).

In 2002, 83% of adolescents were raised by both biological parents (Raymundo, 2003). While leaving home when reaching adulthood is commonplace, cultural norms may delay the departure of children from their parental home. As more employment

opportunities for females, such as those in the service sector, become available in urban areas, it will become more common for young women to leave their parental homes (Cruz, Laguna, & Raymundo, 2001). In general, Filipino adolescents view their parents to be more permissive than controlling (Raymundo, 2003). Adolescents believe their fathers are more strict than their mothers and greater restraints are applied on daughters than sons. Female adolescents are more likely than male adolescents to say their parents are strict, reflecting prevalent gender norms (Cruz, Laguna, & Raymundo, 2001).

National data find that adolescents generally do not discuss sex at home. One study found that only about 15% discuss sexual activity with family members, including parents and siblings. Females, single and older adolescents are most likely to talk about sex at home. Females are more likely to talk to sisters and mothers, while males are more likely to talk to their brothers (Cruz, Laguna, & Raymundo, 2001).

Mental health issues among adolescents have received little attention but has increasingly become a priority worldwide with recent attention by the World Health Organization to the public health importance of mental health issues (World Health Organization (WHO), 2001). Available assessments have found that most Filipino adolescents are generally happy, feel optimistic about the future, and have high levels of satisfaction (Santa Maria, 2002). Similar to adolescents in other countries, however, Filipino adolescents have begun to engage in problem behaviors: 47% have tried smoking, 69% have tried drinking, and 11% have tried drugs (Raymundo, 2003).

E. Adolescent Sexual Behavior in the Philippines

Premarital sex is generally not approved of in the Philippines, even in the engagement period. The majority of Filipino women have first sexual intercourse after marriage. Nevertheless, premarital sex is becoming more common especially in urban areas, as are many other intimate behaviors such as dating and kissing (Medina, 2001).

Group dating is a common practice among Filipino youth to initiate acquaintances with the opposite sex particularly in urban areas (Raymundo, P.Xenos, & Domingo, 1999). Adolescents usually first go out on group dates beginning around ages 13 to 16 and then go on single dates a couple of years later (Medina, 2001). National data from 1994 reveal that by age 20, 44% of the single women and 63% of the single men had been in a serious relationship and by age 24, 60% of women and 68% of men had been in a serious relationship (Xenos, 1997). Thus, romantic involvement and sexual activities start off slowly and are facilitated and supported by peers.

Because of moral standards, girls are made to feel guilty of their sexuality, while boys are encouraged to engage in sexual activities (Cruz, Laguna, & Raymundo, 2001; Medina, 2001; Santa Maria, 2002). Males initiate in dating and sexual activities sooner than females. Men are allowed more freedom related to sexuality than women. Many Filipino youth consider it natural for males to have multiple partners (Medina, 2001; Santa Maria, 2002). In contrast, social norms about young women's behavior tend to be conservative. Females are expected to control and set limits on male sexuality (Medina, 2001; Santa Maria, 2002). Philippine society continues to uphold the value of "hiya" or shame which deeply influences the behavior of girls and women (Cruz, Laguna, & Raymundo, 2001). Young people believe that females should adhere to strict roles in

dating. Subtle flirting is acceptable but not blunt wooing of men. Norms provide that women must be chaste, pure, and untouched at the time of marriage (Medina, 2001).

One of the primary sources of information on adolescence in the Philippines is the Young Adult Fertility and Sexuality Study (YAFS), a series of national surveys conducted in 1982 called the YAFS1, in 1994 called the YAFS2, and in 2002 called the YAFS3. Each survey was conducted among over 10,000 men and women aged 15 to 24 years. While the data are cross-sectional, making it difficult to assess temporal and causal relationships, they are useful in providing a national overview of current sexual behavior and trends among Filipino adolescents.

One of the trends it reveals is an increase in approval of sex before marriage for women. YAFS data from 1994 and 2002 find that the proportion of adolescents who believed it was acceptable for women to have premarital sex has increased from 13% in 1994 to 22% in 2002. Similar data are unavailable for approval of male sexual behavior in 1994 but in 2002 50% of respondents approved of it. The 2002 YAFS found that 56% of boys and 31% of girls reported that some of their friends were having premarital sex (Raymundo, 2003).

The average age at first sex is still relatively high, compared with developed countries and many other developing countries (Singh, Wulf, Samara, & Cuca, 2000). It has reduced slightly over time from 18 in 1982 and 1994 to 17.5 in 2002. Demographic and Health Survey (DHS) data find later ages of first sex: in 1993 the reported median age at first intercourse among women ages 25-49 was 21.8; in 1998 reported median age at first intercourse was 22.1 (National Statistics Office (Philippines) & Macro International, 1994, 1999). These figures are retrospective however, and may be subject

to recall bias. They also reflect a cohort effect, where social norms have changed substantially since the respondents were adolescents.

An analysis of age at first sex in 14 countries using DHS data found that both male and female 15 to 19 year olds and 20 to 24 year olds in the Philippines had the lowest rates of sexual experience (Singh, Wulf, Samara et al., 2000). The proportion of Filipino youth who have had sex before age 15, however, has increased eight-fold from less than 2% in 1994 to about 16% in 2002 (Commission on Population & United Nations Population Fund, 2003). Thus, age at first sex is most likely declining in the Philippines.

Comparisons of data from YAFS2 and YAFS3 show that the proportion of adolescents having premarital and early sex is increasing. From 1994 to 2002 the proportion of males ages 15 to 24 who reported they had sexual intercourse rose from 25% to 31%. Among females ages 15 to 24 the proportion rose from 11% to 15% during the same eight year time period. In 2002, 12% of adolescents ages 15 to 19 and 40% of adolescents ages 20 to 24 had premarital sex, demonstrating that age is a strong factor in sexual activity (Commission on Population & United Nations Population Fund, 2003).

In 1994, as many as 8% of the men reported having paid for sex in their lifetimes (Balk, Brown, Cruz, & Domingo, 1997). The YAFS3 found that 33% of first sexual experiences were not planned, and more than half (57%) were either not planned or something they did not want to happen at the time. Males tend to have more than one sexual partner than females: 49% of sexually active males have had more than one compared with 11% among women. Condoms were used in only one-fifth of first sexual

encounters (Raymundo, 2003). These data indicate that many Filipino youth are engaging in sexual activity yet, are ill-prepared to protect themselves from pregnancy and STIs.

A study of premarital sex using the YAFS2 data from 1994 found that boys who plan to go to college and girls who are more religiously active are less likely to be sexually active. For both groups, those who have initiated in substance use are also more likely to have initiated in premarital sex as adolescents, and this effect is particularly strong for females (Choe, Hatmadji, Podhisita, Raymundo, & Thapa, 2003). Men who lived in urban areas and with secondary or college educations are more likely to have had premarital sex, the YAFS2 data reveal (Balk, Brown, Cruz et al., 1997). The YAFS data is cross sectional, however, and thus, the study is unable to establish temporality.

Data from other studies confirm greater levels of sexual activity among males than females. An unpublished survey using a self-administered questionnaire among 1,196 students ages 15-24 in Dumaguete City in the Philippines found that 50% of boys and 10% of girls were sexually active and of those, most had one sexual partner. Mean age at first sex was 16.8 for boys and 18.4 for girls. Dating was reported by 9% females and 41% of males. Among those who said they date, 22% report that dating usually includes sexual intercourse, although 24% of both females and males report heavy petting (Brown, Jejeebhoy, Shah, & Yount, 2001; Cadelina, 1998).

Marriage rates are declining in the Philippines, and people are getting married later, reflecting a trend towards cohabitation (Medina, 2001). In the Philippines marriage is more of a process rather than a single event. The YAFS2 survey found that in 1994, 51% of married males and 47% of females said they lived with their current spouse before formal marriage (Raymundo, P.Xenos, & Domingo, 1999). Premarital sex is

becoming more acceptable when it occurs in a stable affectionate relationship among two people who will eventually marry (Medina, 2001). In such instances, many do not even consider such sexual intercourse as premarital since it is in a bona fide union. Thus, differences in the definition of premarital sex often lead to drastically different prevalence rates in surveys in the Philippines (Raymundo, P.Xenos, & Domingo, 1999).

In summary, Filipino youth initiate dating and sexual activity later than in other developing countries, but premarital sexual activity is rising. Once they do become sexually active they are often unprepared for sex, and are susceptible to unplanned sex, unintended pregnancy and sexually transmitted infections. Finally, sexual activity among males is greater than females, due to strong social norms against sexual activity for girls.

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Chapter 3: Conceptual Framework and Methodology

A. Conceptual Framework

The study is grounded in ecological systems theory, first proposed by Urie Bronfenbrenner (Bronfenbrenner, 1979). According to this theory, children are located within not just one "environment" but within a number of nested environments or systems. Each system is comprised of the individual, the microsystem, the mesosystem, the exosystem, and the macrosystem (see Figure 3.1). Each of these is a social system with its own dynamics, rules, discourses, and relationships. Each system influences the others, and a change in one sends ripples of change through the others. The ecological systems theory is useful because it highlights the complexity of child and young adult experiences. According to this perspective, it is essential to have an accurate and comprehensive understanding of adolescents' environments and personal circumstances which influence sexual behavior.

A multi-system perspective is important for understanding the numerous influences on adolescent behavior. Too often the focus of research is on influences at the individual level, despite an increased recognition that individuals make sexual and reproductive health decisions based on a wide variety of internal and external forces. Multi-system or multiple determinants frameworks are now common and used to examine a multitude of health behaviors among people of different ages (Bortz, 2002; Chin, Polonsky, Thomas, & Nerney, 2000; Mosley & Chen, 1984). In the Philippines, where emphasis on family and tradition is strong, a framework which emphasizes the reciprocal relations among multiple systems of influence on an adolescent's behavior is even more relevant. For example, an adolescent female in the Philippines rarely contemplates having sex for the first time without thinking about societal views and how

it would reflect on her family. Further, a multi-system perspective is even more essential in understanding adolescents who are still in developmental stages and are more reliant on external influences in making choices than adults. The proposed study does not aim to test Ecological Systems Theory but draws on relevant components to develop a contextual understanding of adolescent behavior.

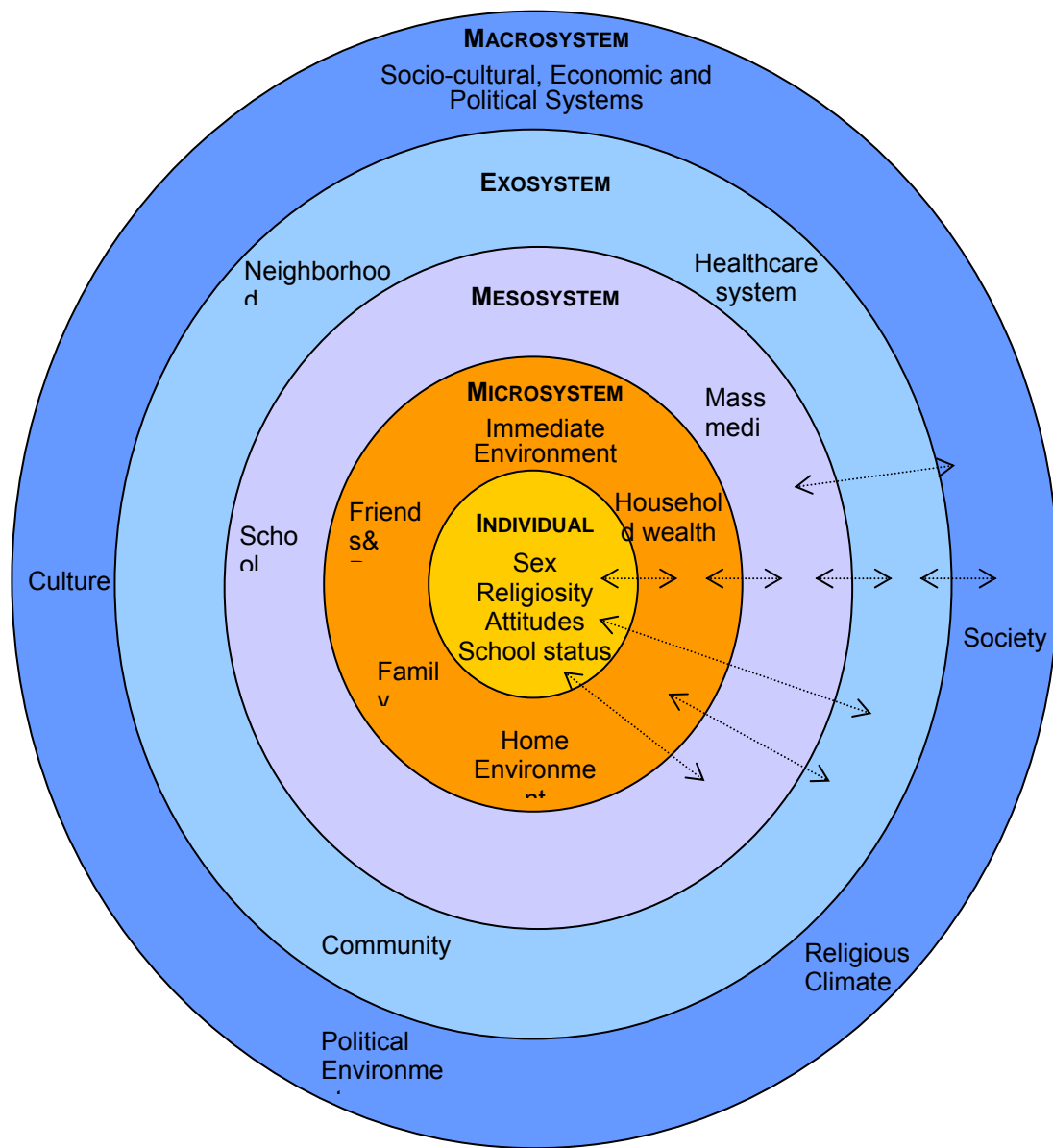


Figure 3.1: Conceptual framework: Bronfenbrenner's Ecological Systems

While higher order systems, such as the macrosystem, are very relevant in affecting adolescent sexual behavior, they work through one or more of the proximate systems. For example, in a socio-cultural environment where early sexual activity is the norm, an adolescent is likely to have sex earlier than in communities where late sexual activity is the norm, all other things being equal. The framework also incorporates a feedback mechanism: the systems have inward and outward influence. Household wealth in the microsystem may influence individual behavior which may in turn send ripples back out, influencing the home environment. The ecological systems theory contends that these ripples continually shape and reshape the relations among the systems.

The present study assesses how several factors at the microsystem level (in dark orange) influence precoital behaviors and age at first sexual intercourse at the individual level. This study focuses on the relationship between the individual and his or her microsystem. In addition, the influence of the community level (exosystem) variation is taken into account in most of the analyses.

B. Overview of the Cebu Longitudinal Health and Nutrition Survey

The Cebu Longitudinal Health and Nutrition Survey (CLHNS) began as a joint endeavor of the Carolina Population Center, University of North Carolina at Chapel Hill, the Nutrition Center of the Philippines, Manila, and the Office of Population Studies, University of San Carlos, Cebu City (Adair & Popkin, 2001). It is part of an ongoing study of a cohort of Filipino women who gave birth between May 1, 1983 and April 30, 1984.

The CLHNS followed all women pregnant in 1983-84 and their newborns (the index children) 33 randomly selected barangays in Metro Cebu. The study initially included over 3,000 women and includes follow-up surveys conducted in 1991-92, 1994-95, 1998-2000, and 2002. Another round of data was collected in 2005 but they are not yet available. The CLHNS follow-up surveys retain a dual focus on mothers and index children. The data are being used to study the long term effects of childbearing and rearing on health and nutritional status, as well as social status, work, and earnings. Funding for the project design, data collection, and database development have been provided by the Ford Foundation, the U.S. National Academy of Science, the National Institutes of Health, the Fogarty International Center, Nestle's Coordinating Center for Nutrition Research, Wyeth International, and the U.S. Agency for International Development.



Figure 3.2: Map of Cebu: Participants initially were from 33 barangays. Due to migration, by 2002 the women and their children had moved into over 170 barangays.

C. Data collection

Adolescent interviews began in the 1998-2000 round of data collection. Before that, information on this cohort was primarily obtained from their mothers or caretakers. In the 2002 round of data collection, most adolescents were interviewed in their homes. Some adolescents were interviewed before their mothers, some right after, while still others were interviewed almost simultaneously since separate interviewers were assigned for mothers and adolescents. In some cases, it took the interviewers several visits to the household or to other households to complete the interview. On average each mother and adolescent interview took a total of two sessions making up a total of 2.5 hours to complete.

Most interviewers have been with the CLHNS since the study's inception. Interviewers were thoroughly trained in interviewing techniques and in obtaining reliable health data. Interviews with adolescents were conducted alone, but for 9% of interviews, curious family or neighbors could not be kept away. If the onlookers interrupted the interview, the interviewer momentarily stopped the questions. When the setting was free from interruptions, the interview resumed.

All data are checked and entered into a database by trained staff at the Office of Population Studies, University of San Carlos in the Philippines. The questionnaires are first edited before the data are entered and then cleaned with validity checks.

D. Study Sample and Survey Rounds for the Present Study

All pregnant women within 33 randomly selected barangays (communities) (17 urban and 16 rural) in Metro Cebu Philippines in 1983-84 were invited to participate in

the study. This sampling scheme resulted in 3,080 live births. Participants were recruited without respect to health status and no exclusion criteria were applied.

The 1994 survey captured 2,483 mothers and covered issues related to their diet, reproductive history, activities, household decisions, migration history, household characteristics, household members' income, household members' characteristics, and household expenses. Their children were not interviewed. The women moved from 33 barangays to 162 different barangays by the time of the 1994 survey.

The 1998-2000 survey captured 2,210 mothers and covered the same issue areas as the 1994 survey. By then the mothers lived in 168 different barangays. This was the first year their children were surveyed, capturing 2,117 adolescents ages 14 to 16. The children's survey covered issues related to their activities diet and anthropometry, food recall, employment, morbidity, physical activity, schooling, sexuality, and reproductive health. The children lived in 166 barangays.

The 2002 survey captured 2,113 mothers, although this data was not used in the study. The 2002 survey round captured 2,051 adolescents at ages 17 to 19. Adolescents who moved within Cebu province were interviewed, but the almost 5% who moved to other parts of the Philippines or beyond were not interviewed. The adolescents in the sample now live in 172 barangays as they have become much more geographically dispersed since the 1983-84 baseline survey. The 2002 survey data was used as the primary source for this study's outcomes (adolescents' precoital behaviors and age at first sex) while earlier survey rounds (1994, 1998-2000) were used to measure the key independent variables.

E. Analysis

Much of the analysis in this study employs survival analysis to model time to first sex, a discrete-time, nonrepeatable event (Whitbeck, Yoder, Hoyt, & Conger, 1999). The most appropriate method for estimating time to first sex is survival analysis because those respondents who have never had sex at the time of the 2002 survey will be censored out of the analysis (Zaba, Boerma, Pisani, & Baptiste, 2002). First the proportionality assumption was tested using Kaplan Meier diagnostics and then Cox proportional hazards models were used (Cox, 1972) to model time to first sex. Other studies that have utilized Cox regression to assess the determinants of the timing to first sex were observed as models (Gupta, 2000; Mensch, Clark, Lloyd, & Erulkar, 2001; Zaba, Boerma, Pisani et al., 2002).

Much of the analyses used a block modeling strategy whereby groups of variables are entered into a model separately. This modeling strategy allows one to sort out the effects of particular groups of variables both before and after adjustment for other factors. The magnitude and direction between the independent and dependent variables after bivariate and multivariate analysis were compared, assessing for possible interactions and colinearity.

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Chapter 4: Manuscript 1

Before First Sex: Gender Differences in Emotional Relationships and Physical Behaviors
Among Adolescents in the Philippines

A. Abstract

Purpose: Most studies in developing countries examine the age at first sex as a predictor for subsequent risk behavior. Examining patterns of emotional relationships and physical behaviors leading up to first intercourse and how they differ by sex, could point to important cues about how to prepare boys and girls for impending sexual activity.

Methods: The precoital activities of 2,051 adolescents ages 17 to 19 in Cebu, Philippines are examined using data from the CLHNS. The timing and tempo of emotional relationships and physical behaviors are described. Then survival analysis is employed to examine the characteristics associated with age at first sex.

Results: Boys engage in physical behaviors and first sex at younger ages than girls ($p \leq 0.001$). While they follow a similar order in emotional relationships, boys progress through them more quickly than girls ($p \leq 0.001$). After adolescents have their first crushes, courtships, romantic relationships, and dates, there are several years before they have first sex and this delay is longer for girls than boys. In the multivariate analysis, fast pace of emotional relationships is a significant predictor of having sex at a younger age among girls ($HR=1.85$, $p \leq 0.001$), but not among boys.

Conclusions: Parents can ensure that boys are prepared at younger ages and girls who advance quickly through emotional relationships are equipped with the information and access to services needed for safer sex. The pause or delay that both boys and girls

experience before sex provides an opportunity to ensure that adolescents can make informed choices about sexual behavior.

B. Background

Studying the progression towards first sexual intercourse will improve the understanding of adolescent sexuality in the developing world and aid in identifying and preventing risky sexual behaviors. Studies in the developing world point to early age as first sex as a risk factor for HIV infection or unplanned pregnancy (Blanc & Way, 1998; Magnani, Sosler, McCann, & Speizer, 2001; Pettifor, van der Straten, Dunbar, Shiboski, & Padian, 2004; Zaba, Pisani, Slaymaker, & Boerma, 2004). It is likely, however, that the predictors of poor reproductive health outcomes surface much earlier than at the time of first sex.

Miller and colleagues argue that the category of not being sexually active is too broad and that studying more detailed behaviors before first sex can provide useful insight into their potential risk (Miller, Clark, Wendell, Levin, Gray-Ray, Velez et al., 1997). For example, their cross-sectional study of US adolescents aged 14-17 who have not had sex found that those who engage in more precoital behaviors, such as kissing and petting, are significantly more likely to anticipate having sex in the next year than those who do not engage in precoital behaviors. Studying the pace of precoital behaviors also helps to understand when adolescents will first have sexual intercourse. Smith and Udry suggest that a culture with normative expectations of a long, drawn out precoital period allows for a longer “preparatory” period before adolescents first initiate sex (Smith & Udry, 1985).

There seems to be consistency in the sequence that adolescents experience precoital behaviors. Data from the 1994 Young Adult Fertility Survey (YAFS), a national study of Filipino adolescents, found a general pattern in precoital activities. Adolescents

first had crushes, then had admirers or began admiring others, then had their first group date, then had their first boyfriend or girlfriend, and finally had their first single date (Raymundo, Xenos, & Domingo, 1999).

Studies in several other cultures have found similar patterns in the progression towards sexual intercourse and that. This order represents one way of characterizing the degree of sexual activity engaged in by adolescents (Hansen, Paskett, & Carter, 1999). Adolescents experience these milestones, however, at different ages in different cultures. Further, males and females reach each precoital behavior at different ages, with males significantly earlier than females in most countries (Lam, Shi, Ho, Stewart, & Fan, 2002; Youn, 1996; Zulkifli, Low, & Yusof, 1995).

Studies in Malaysia (Zulkifli, Low, & Yusof, 1995), Korea (Youn, 1996), Hong Kong (Lam, Shi, Ho et al., 2002), and Slovenia (Pinter & Tomori, 2000) confirm that most adolescents follow a gradual order in precoital activities and large differences between boys and girls. For example, in a cross-sectional survey in Malaysia, researchers found a gradual reduction in the proportion of adolescents engaging in intimate behaviors at each step between dating and sexual intercourse. Of the total 1,181 Malaysian adolescents, 45% have dated. Of those who have dated, almost 60% of boys and 17% of girls have kissed and necked. Almost 50% of boys and 10% of girls have engaged in petting, and 27% of boys and 5% of girls had sexual intercourse (Zulkifli, Low, & Yusof, 1995). Also, the 1996-1997 Hong Kong study among 4,116 students found a Guttman pattern in heterosexual activity—a gradual progression from holding hands, kissing, and caressing to sexual intercourse. As in Malaysia, boys were more likely to engage in every behavior examined (Youn, 1996).

While the Malaysian study is community based, the Korea, Hong Kong, and Slovenia studies utilize data collected from surveys done in schools. A limitation of studies done among students is that they may underestimate the true prevalence of precoital behaviors since those who are absent or have dropped out of school are more likely to have engaged in these behaviors (Guttmacher, Weitzman, Kapadia, & Weinberg, 2002; McCrystal, Higgins, Percy, & Thornton, 2005). The present study examines behaviors that occur up to and including sexual intercourse in the Philippines is community based, and includes adolescents in school and out.

This analysis has several aims: first, to understand precoital behaviors of Filipino adolescents and to understand how boys and girls differ in their behaviors. Based on studies in other countries, it is hypothesized that boys engage in precoital behaviors earlier and the tempo of these precoital behaviors is faster. Second, this analysis aims to understand whether there is a consistent order in the pattern of precoital behaviors, and it is hypothesized that a single predominant pattern will evolve. Third, this study aims to understand whether progressing through emotional relationships quickly, called fast tempo in this study, is related to the timing of first sex.

Gender and Sexual Behavior in the Philippines

Due to gender norms, both the timing of sexual intercourse and the factors that influence the timing of first sex differ between boys and girls in many countries around the world. Most studies in developing countries, particularly Asia, find that males become sexually active earlier than girls, because of greater tolerance to premarital sexual behavior for boys than girls (Isarabhakdi, 1999; Meekers & Ahmed, 2000; Rani,

Figueroa, & Ainsle, 2003; Zulkifli & Low, 2000). A forthcoming review of the risk and protective factors of early sexual initiation found that in 8 out of the 10 studies that included sex in their model, boys were significantly more likely to have had sex than girls (Mmari & Blum, 2006).

In the Philippines premarital sex is generally not approved of, even in the engagement period. The majority of Filipino women have first sexual intercourse after marriage. Nevertheless, premarital sex is becoming more common especially in urban areas, as are many other intimate behaviors such as dating and kissing (Raymundo & Cruz, 2004; Raymundo, Xenos, & Domingo, 1999).

Group dating is a common practice among Filipino youth to initiate acquaintances with the opposite sex particularly in urban areas (Raymundo, Xenos, & Domingo, 1999). Adolescents usually first go out on group dates beginning around ages 13 to 16 and then go on single dates a couple of years later (Medina, 2001). National data from 1994 reveal that by age 20, 44% of the single women and 63% of the single men had been in a serious relationship and by age 24, 60% of women and 68% of men had been in a serious relationship (Xenos, 1997). Thus, romantic involvement and sexual activities start off slowly and are facilitated and supported by peers.

There are substantial differences in expectations for girls and boys about sexuality. Girls are made to feel guilty about their sexuality, while boys are encouraged to engage in sexual activities (Cruz, Laguna, & Raymundo, 2001; Medina, 2001; Santa Maria, 2002). Males initiate in dating and sexual activities sooner than females. Men are allowed more freedom related to sexuality than women. Many Filipino youth consider it natural for males to have multiple partners (Medina, 2001; Santa Maria, 2002). In

contrast, social norms about young women's behavior tend to be conservative. Females are expected to control and set limits on male sexuality (Medina, 2001; Santa Maria, 2002). Philippine society continues to uphold the value of "hiya" or shame which deeply influences the behavior of girls and women (Cruz, Laguna, & Raymundo, 2001). Young people believe that females should adhere to strict roles in dating. Subtle flirting is acceptable but not outright wooing of men. Norms provide that women must be chaste, pure, and untouched at the time of marriage (Medina, 2001).

The median age at first sex is still relatively high, compared with developed countries and many other developing countries (Singh, Wulf, Samara, & Cuca, 2000). National data, however, suggests it may be dropping however. National YAFS data finds that it has dropped slightly over time from 18 in 1982 and 1994 to 17.5 in 2002.

Demographic and Health Survey (DHS) data find later ages of first sex but probably because it measures median age at first sex among girls only. In 1993 the reported median age at first intercourse among women ages 25-29 was 22.3, in 1998 it was 22.8, and in 2003 it was 22.1 (National Statistics Office (Philippines) & Macro International, 1994, 1999; National Statistics Office (Philippines) & ORC Macro, 2004). These figures are derived from retrospective data however, and are subject to recall bias.

C. Hypotheses

The present study aims to explore the pre-coital sexual experiences of Filipino adolescents, including the first crush, first date, first relationship, holding hands, kissing, petting, and first sexual intercourse.

The study tests the following hypotheses:

- a. The prevalence and timing of precoital behaviors will differ between boys and girls.
- b. Most adolescents will follow a consistent order in the pattern of precoital behaviors.
- c. Going through precoital behaviors quickly, called fast tempo, increases the risk of having sex at a younger age.

D. Methods

Study Setting

Cebu is an island province of the Philippines located in the Central Visayas region. Cebu is one of the most developed provinces in the country. The study area, Metro Cebu, is the second largest metropolitan area in the country, and had a population of almost 1.7 million at the last Census in 2000. This is second only to Metro Manila in population. Metro Cebu accounts for 15% of the land area and 44% of the population of the entire province of Cebu. Although it has some rural segments in its peripheries, it still is highly urbanized relative to the rest of the country. It is a major port city and home to several export processing zones (Zosa, Zosa, Cusi, & Gultiano, 2004). Cebu is not as modern a metropolis as Metro Manila and embodies most of the characteristics of highly urbanized (and fast urbanizing) areas in the Philippines. At the same time, some areas of Metro Cebu still retain the less-urbanized characteristics of other cities in the country.

Data Collection

The Cebu Longitudinal Health and Nutrition Survey (CLHNS) provides the data for the present study. The CLHNS began as a joint endeavor of the Carolina Population Center, University of North Carolina at Chapel Hill, the Nutrition Center of the

Philippines, Manila, and the Office of Population Studies, University of San Carlos, Cebu City. It is part of an ongoing study of a cohort of Filipino women who gave birth between May 1, 1983 and April 30, 1984. The CLHNS followed all women pregnant in 1983-84 and their newborns (the index children) in Metro Cebu. The study initially included over 3,000 women and includes follow-up surveys conducted in 1991-92, 1994-95, 1998-2000, and 2002. The CLHNS follow-up surveys in 1998-2000 and 2002 also included expansive interviews with the now adolescent index children. Earlier on, the study focused on nutrition and feeding practices, but over time has expanded to include modules on schooling, work, and reproductive and sexual health.

All surveys were conducted as approved by the University of North Carolina School of Public Health Institutional Review Board for research involving human subjects and the 2002 survey was also approved by The Johns Hopkins Bloomberg School of Public Health Committee on Human Research.

The adolescents in the sample have become much more geographically dispersed since the 1983-84 baseline survey and now live in 172 different barangays throughout Cebu province. Most adolescents were interviewed in their homes. In some cases, it took the interviewers several visits to the household or to other households to complete the interview. On average each interview took a total of two sessions making up a total of 2.5 hours to complete. One part of the adolescent survey was self-administered, where respondents were asked to identify the drawing that most resembles their physical maturation.

Attrition

The 1998-2000 survey included 2,117 adolescents. By 2002, 101 of these adolescents were lost to follow up mainly due to out migration. In the 2002 survey, however, 35 index children (children of the mothers in the original sample) who were not captured in the 1998-2000 survey, were located and added back to the sample. The final sample in 2002 included 2,051 adolescents.

Instruments

Both the 1998-2000 and 2002 adolescent surveys included questions regarding experience of precoital behaviors including crushes, courting, being in a relationship, dating, and holding hands. Data on whether the adolescent experienced petting, kissing, or sexual intercourse are available only from the 2002 survey. The 1998-2000 survey asked only those adolescents who were in romantic relationships about kissing, petting, or sexual experience, due to concerns about asking young adolescents sexually explicit questions and therefore, complete data for physical behaviors in 1998-2000 are unavailable.

Unlike studies of precoital behaviors in other countries, the CLHNS includes questions with a focus on relationships (i.e. courting, dating, etc), in addition to particular sexual activities, (i.e. kissing, petting, etc) thus providing richer data for the description. For example, the adolescents were asked about their definitions of emotional relationships and their responses from 2002 are reported here. Adolescents were asked

open ended questions, such as, “What do you understand by courtship?” The responses were collected, categorized, and then coded by native Cebuano speakers.

Independent variables include the order and pace of emotional relationships. Models adjust for a set of socio-demographic variables including, household wealth index, based on Filmer and Pritchett’s index (Filmer & Pritchett, 2001), whether the adolescent lives in a rural area, frequent church attendance, and highest grade completed.

Data Analysis

The data analysis was done in three parts. First, the progression through emotional and physical relationships is described. Second, the timing and tempo of the behaviors are described. In this step, Kaplan-Meier plots are used to depict the age of experiencing emotional relationships including, first crush, courtship, romantic relationship, date, and sexual intercourse (in years) graphically. These plots display estimates of the survival function for survival data recorded for each adolescent. Survival analysis accounts for variations in the age and the order of events and makes full use of the age data available in the CLHNS.

Scales are also created to assess the order of emotional relationships and how quickly they moved through them. The scale assessing order was created by tabulating the order in which the adolescents engaged in the relationships, based on reported ages. The order that was most common was considered the dominant order. The scale assessing tempo, or how quickly boys and girls moved through relationships, divided the adolescents into 3 categories, those who experienced only 0-2 emotional relationships, those who experienced 3-4 emotional relationships over multiple years, and those who

experienced 3-4 emotional relationships quickly, defined as within 1 year, based on reported ages.

Third, bivariate analyses are conducted to examine the characteristics that are associated with ever having had sex and multivariate survival analysis is conducted to examine the characteristics associated with boys and girls' age at first sex, taking into account several socio-demographic factors.

Because first sex is a discrete-time, nonrepeatable event (Whitbeck, Yoder, Hoyt, & Conger, 1999), the most appropriate method for estimating time to first sex or to the first time of any event is survival analysis (Zaba, Boerma, Pisani, & Baptiste, 2002). Survival analysis is preferable in modeling time to first sex because it censors cases that have not had sex by the end of the analysis period. It allows for the inclusion of time that participants contribute to the analysis between the collection of independent variables up to the time they are censored out or have first sex. If the data are proportional, Cox proportional hazards methods, which estimate the instantaneous risk of having first sex taking into account the effect of covariates, are useful particularly in longitudinal studies (Cox, 1972).

The hazards models control for such demographic variables as, wealth, urban residence, church attendance, and highest grade completed. All analyses were done separately for boys and girls. All standard errors in the analysis are adjusted for clustering based on barangays (communities). All analyses were conducted using STATA version 7 (Stata Corporation, 2003).

E. Results

The final sample included 2,117 adolescents ages 14 to 16 in 1998-2000 and 2,051 adolescents ages 17 to 19 in 2002 (see Table 4.1). Because of survey implementation issues, the 1998-2000 round of the CLHNS was conducted with all girls first and then boys. The only variable that demonstrated unanticipated differences over time by sex is church attendance. While rates fell significantly between survey rounds, a sizable gender gap persisted with significantly more girls reporting frequent church attendance than boys.

Table 4.1 Characteristics of the adolescent sample, by sex, Cebu, Philippines				
	1998-2000		2002	
	Males	Females	Males	Females
Age (mean)	15.58	14.55	18.18	18.19
Wealth index (mean, range= (-2.82 -- 1.23)	-0.73	-0.76	-1.81	-1.83
Urban (%)	71.53	72.10	74.38	73.91
Church attendance 3 times/month or more (%)	58.92	72.00	39.85	58.32
Highest Grade Completed (mean)	8.65	8.72	9.72	10.83
N	1110	1007	1089	962

Progression through Emotional Relationships

Table 4.2 shows the proportion of adolescents who have experienced several emotional relationships and physical behaviors by survey round and sex. Gender differences in emotional relationships were apparent in the 1998-2000 survey, when the boys were interviewed later than the girls. Many of the differences were no longer significant when asked again in 2002 when boys and girls were interviewed at the same age. The adolescents were also asked open ended questions about how they define the

emotional relationships. Only the most common definitions were described here. Overall, the definitions tended to be significantly different between boys and girls.

At ages 14-16 most of the adolescents reported having had a crush on someone of the opposite sex, with 82% of boys and 86% of girls ever having had a crush. Crushes were nearly universal by ages 17-19. When asked at ages 17-19 how they define a crush about 40% of both boys and girls said that it is an attraction or fascination towards attitudes, physical aspects, abilities, or talents in another person. About 45% of boys and 26% of girls said it was a liking or fondness for another person, and 9% of boys and 28% of girls said a crush is admiration or appreciation for another. Overall, definitions were significantly different between boys and girls ($p \leq 0.001$) (data not shown).

Between ages 14-16 and 17-19, the proportion of adolescents who reported having courted someone or having been courted increased from 36% to 83% among boys and from 43% to 91% among girls. Differences between boys and girls were significant in both surveys ($p = 0.003$ and $p \leq 0.001$ respectively). When asked at ages 17-19 how the adolescents define courting, 19% of boys and 28% of girls said it was liking, fondness, or attraction towards a girl or boy and 19% of boys and 15% of girls said it was expressing one's feelings (liking) towards the person liked. Overall, definitions were significantly different between boys and girls ($p \leq 0.001$) (data not shown).

About 34% of boys and 18% of girls reported having had a romantic relationship by ages 14-16, a difference that was significant (≤ 0.001). This proportion rose to 75% of both boys and girls by ages 17-19. Among the girls who reported having been in a romantic relationship by ages 17-19, 84% had older partners. Among those who reported having been in a romantic relationship, similar proportions of the boys (63%) and girls

(60%) have had one or two romantic partners, and the rest reported more. Two boys and a girl reported having 20 or more romantic partners (data not shown).

Table 4.2 Proportion of adolescents experiencing emotional relationships and physical behaviors						
	1998-2000			2002		
	Males (N=1,110)	Females (N=1,007)	<i>p</i>	Males (N=1,089)	Females (N=962)	<i>p</i>
Mean Age at Interview	15.58	14.55	NS	18.18	18.19	NS
Emotional Relationships						
Crush	81.53	86.49	0.002	98.90	99.06	NS
Courtship	36.31	42.50	0.003	83.10	90.64	<0.001
Dating	35.14	22.84	<0.001	72.08	69.23	NS
Romantic relationship	34.05	18.37	<0.001	75.21	75.26	NS
Physical Behaviors						
Holding hands	37.21	27.31	<0.001	89.07	87.73	NS
Kissing	NA	NA	___	71.99	65.18	<0.001
Petting	NA	NA	___	53.72	33.58	<0.001
Sexual intercourse	NA	NA	___	30.76	19.54	<0.001

NA= Not asked in the interview

NS=Not statistically significant at the $p \leq 0.05$ level

About 35% of boys and 23% of girls reported ever having been on a date by ages 14-16 and 72% of boys and 69% of girls reported ever having been on a date by ages 17-19. At ages 14-16 significantly more females reported having been on a date than boys ($p \leq 0.001$) but when asked again at ages 17-19, the difference was no longer significant. When asked what they understand by the word “date,” 35% of boys and 34% of girls said it meant going out alone with a boyfriend or girlfriend, 27% of both boys and girls reported date was simply talking alone with boyfriend or girlfriend. Another 13% of boys and 18% of girls said it was going out and talking with an admirer. Again, definitions were significantly different between boys and girls ($p \leq 0.001$) (data not shown).

When asked in 2002 about their first date, the majority of boys (67%) and girls (46%) reported their first date was unchaperoned although boys were significantly more likely report so ($p \leq 0.001$). Girls were significantly more likely than boys to report that their first date was chaperoned (18% for girls vs. 10% for boys, $p \leq 0.001$). Girls were also significantly more likely to report that their first date was as a group (36% for girls vs. 23% for boys, $p \leq 0.001$) (data not shown).

The specific activities of first dates varied widely, but the most common was going to the mall, plaza, or school ground and eating together, with 29% of girls and 23% of boys who have ever been on a date reporting having done so. Significantly more boys reported just talking on their first date (25%) than girls (17%). Just 10% of boys and 12% of girls reported going to a movie alone on their first date (data not shown).

Physical Behaviors Including Sexual Intercourse

There also were significant differences in the reported experience of physical behaviors between boys and girls (see Table 4.2). Among the sample, 37% of boys and 27% of girls reported having held hands by ages 14-16, a difference that was statistically significant ($p \leq 0.001$). By ages 17-19 the difference was no longer significant; 89% of boys and 88% of girls reported ever having held hands. By ages 17-19, significantly more males reported having experienced each physical behavior than females. (Data on these physical behaviors are incomplete for the 1998-2000 survey.) Almost 72% of boys and 65% of girls report ever kissing, 54% of boys and 34% of girls reported ever petting.

Over a fourth of the sample (25%) reported ever having had sex; significantly more males (31%) reported having had sex than females (20%) ($p \leq 0.001$).

Of those who reported having had sex, 97% of girls and 52% of boys reported that their first time was with their current boyfriend or girlfriend. Almost 5% of boys and 2% of girls reported their first time was with a previous romantic partner and 39% of boys and less than 1% of girls said it was with someone outside the relationship (unpaid). Finally, 4% of boys ($n=14$) and no girls said they paid for their first sexual encounter. Among those who reported having had sex, 24% of boys and 37% of girls said they had sex for the first time at their partner's house, another 13% of boys and 28% of girls said they had sex for the first time at their own homes, and another 12% of both boys and girls said they had sex at a rented cottage, hotel, inn, or prostitute's den (data not shown).

Timing and Tempo of Emotional Relationships and Physical Behaviors

Figures 4.1 and 4.2 show the age at which the males and females reported they engaged in each of the behaviors in a graphic, as reported in 2002. They show that both males' and females' first reported crushes were well before other emotional relationships. In general, males and females reported they experienced their first courtships, their first romantic relationships, and their first dates around the same age, within a few years of one another. Tests for significance determined that the curves for first crush, first courtship, and first sex were significantly different between girls and boys ($p \leq 0.001$).

The adolescents were asked at what age they had their first crush, their first courtship, their first date, and their first romantic relationship. Reported median age at first crush was 14 among boys and 13 among girls. Reported median age at first courtship

was 16 among boys and 15 among girls. Reported median age at first romantic relationship was 16 among both boys and girls. Reported median age at first date was 16 among boys and 17 among girls. Finally, reported median age at first sex was not estimated because at least half of the sample had not yet experienced first sex. The median number of years between reported first crush and first date was 2 years for boys and 4 years for girls (see Table 4.3).

There was a considerable amount of time before reported first sex but this gap is even longer for girls than for boys. In general, there were larger gaps between events among females than males. These results indicate that when adolescents began engaging in emotional relationships, sexual intercourse followed after several years. While, the median age at first sex had not been estimated for either males or females, significantly more males reported having sex by ages 17-19.

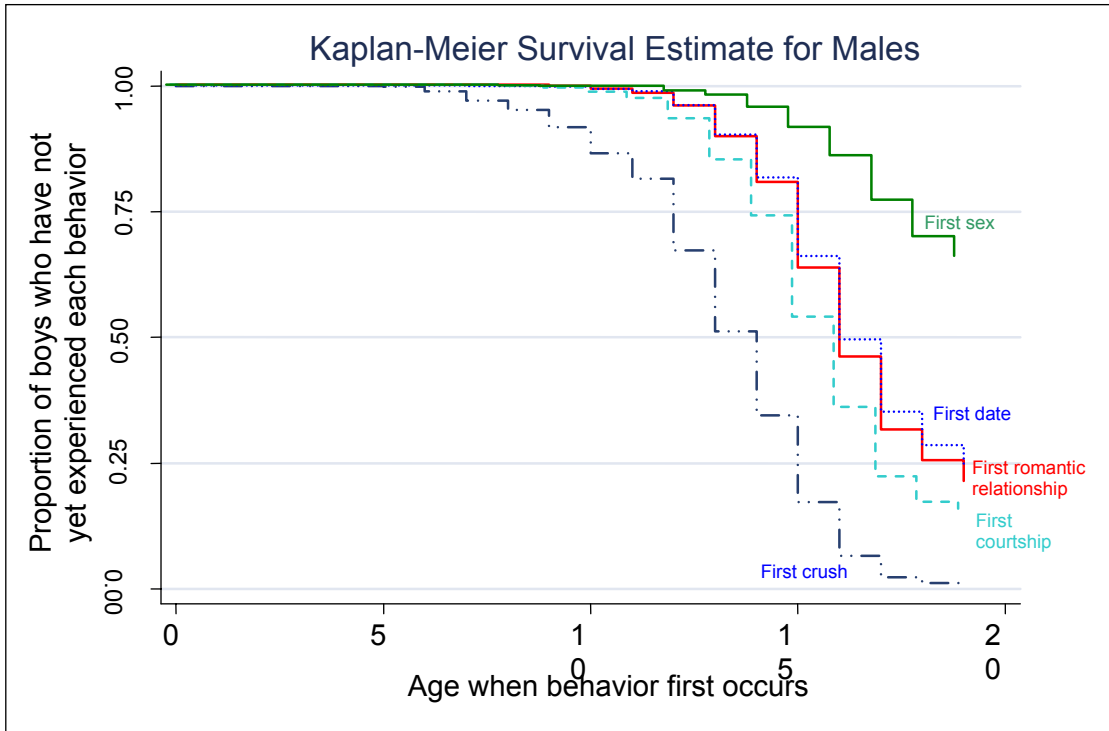


Figure 4.1: Kaplan-Meier survival estimates for males

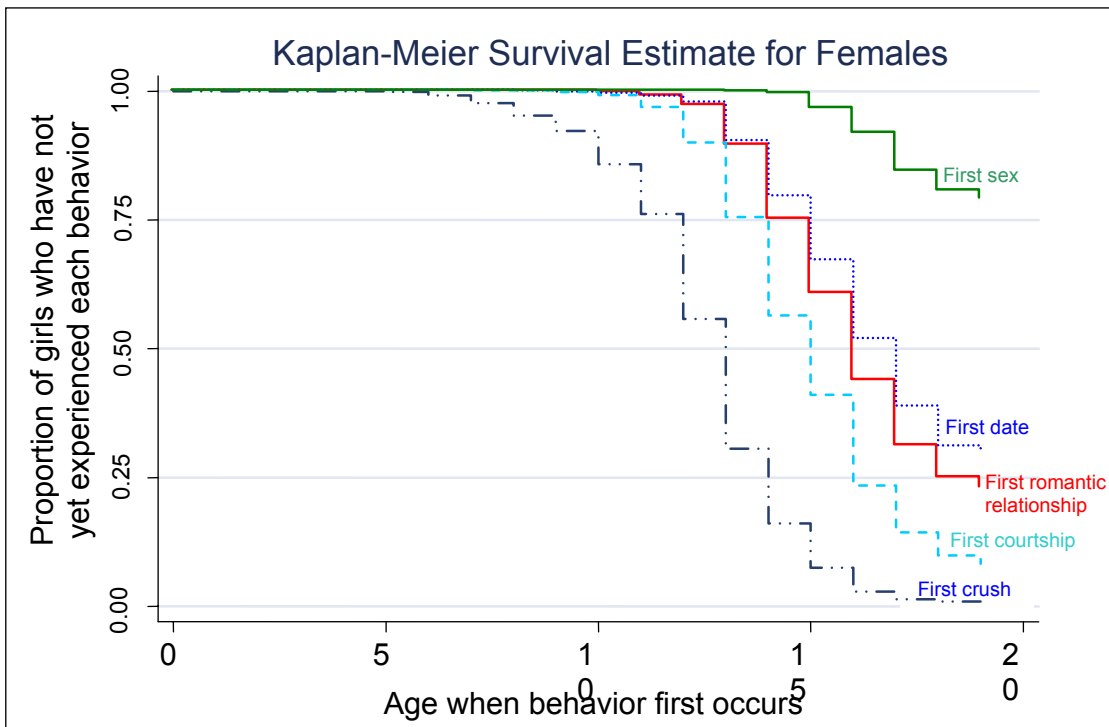


Figure 4.2: Kaplan-Meier survival estimates for females

Table 4.3 Median number of years between romantic behaviors				
	Boys (n=1089)		Girls (n=962)	
	median	range	median	range
Years between first crush and first courtship	2.00	(-4 - 13)	2.00	(-6 - 12)
Years between first courtship and first romantic relationship	0.00	(-3 - 8)	0.00	(-3 - 8)
Years between first romantic relationship and first date	0.00	(-9 - 6)	0.00	(-9 - 8)
Years between first date and first sex	1.00 ^a	(-8 - 11)	1.00 ^a	(-4 - 10)
Years between first crush and first date	2.00	(-5 - 12)	4.00	(-6 - 12)

^aMedian age between first date and first sex is underestimated because half of the sample has not yet had sex.

An emotional relationships scale was then constructed based on the age at which they report their first crush, their first courtship, their first date, and their first romantic relationship. These results are based on data from when they are 17-19 because the adolescents reported having experienced more emotional relationships by then and the data are more complete. The order of relationships for each adolescent was analyzed and the most common order was considered the dominant order. The data indicate that 87% of boys and 83% of girls have started to experience emotional relationships in a particular pattern; they experienced crushes, courting, romantic relationships, and dating in that order (see Table 4.4). Boys and girls differed significantly at every level of “how far” they report they have gone in their emotional relationships. The proportion of girls and boys at each stage differed and the overall pattern for boys and girls was significantly different ($p \leq 0.001$).

Almost 12% of boys and 16% of girls had experienced skipped patterns, that is, emotional relationships in another order. Many reported not having experienced all of the emotional relationships stages yet, but a clear pattern was still apparent. Girls tended to skip patterns in their emotional relationships significantly more than boys ($p=0.008$). Girls who have skipped patterns were about half as likely to have ever had sex compared with girls who proceed in the prevailing order ($OR=0.51$, $p=0.01$) but this was not seen in boys. The majority of adolescents who skipped patterns reported experiencing their first date before their first romantic relationship, which is not an unusual pattern in other countries. Among the 127 boys who went out of order, 95% reported experiencing their first date before their first relationship. Among the 151 girls who went out of order, 91% reported experiencing their first date before their first relationship (data not shown).

Table 4.4 Order of emotional relationships (based on reported ages) by sex, 2002			
Behavior	% of Males	% of Females	p-value
No emotional relationships	1.10	0.83	0.5
Crush only	13.96	7.90	0.001
Crush before Courting	5.97	10.50	0.001
Crush before Courting before Romantic Relationship	6.43	10.08	0.003
Crush before Courting before Romantic Relationship before Dating	60.88	54.99	0.007
Skipped patterns	11.66	15.70	0.008
Total	100.00	100.00	

n=1,089 boys and 962 girls

Many of the adolescents reported experiencing several of these emotional relationships in a single year. To assess the tempo of going through these stages, a three-

level variable was created to indicate the pace of emotional relationships. Similar proportions of males and females reported experiencing only 0-2 emotional relationships. Among those who reported experiencing 3-4 emotional relationships, males were significantly more likely to experience them quickly ($p \leq 0.001$). Over 49% of boys and 32% of the girls were considered to be experiencing the relationships quickly, a difference that was also significant ($p \leq 0.001$) (see Figure 4.3).

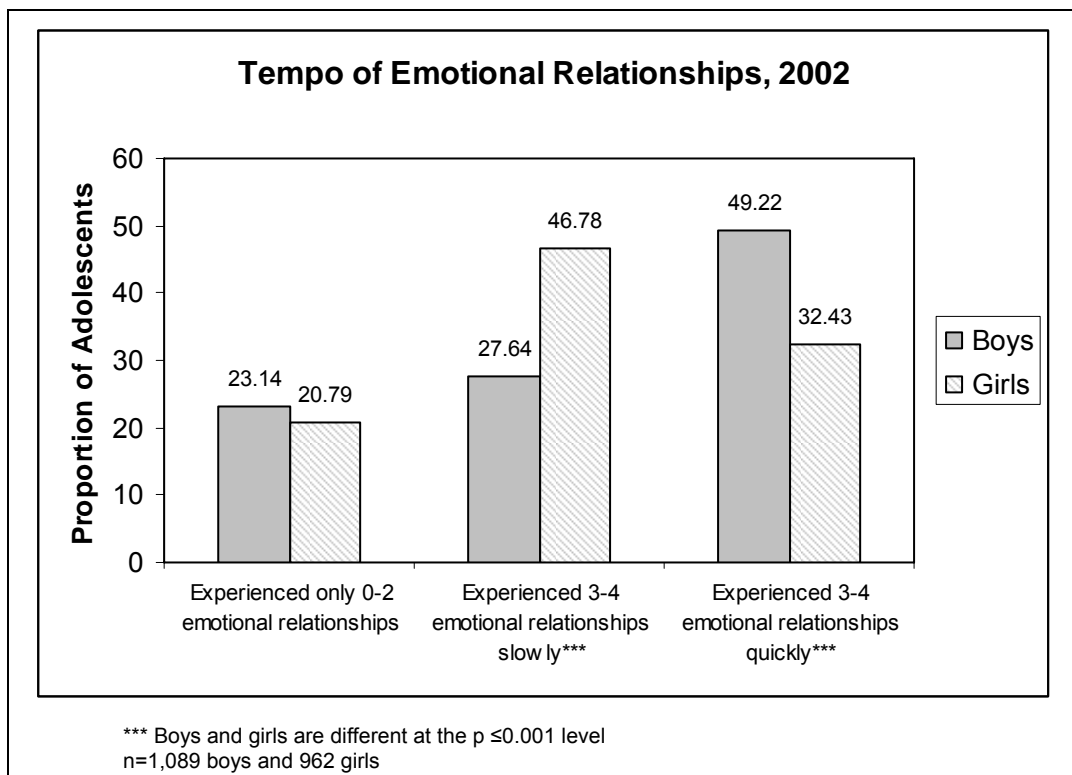


Figure 4.3: Tempo of emotional relationships, 2002

Multivariate Hazards Models: Characteristics Associated with Delayed Sex

While boys were more likely to experience emotional relationships quickly than girls, it was necessary to explore whether experiencing them quickly makes them more likely to have sex at a younger age. The effect of experiencing emotional relationships quickly was examined among boys and girls separately. After confirming that the

proportionality assumption was met using Kaplan Meier plots, Cox proportional hazards models were run to assess the factors associated with the risk of having sex by a given age.

In Table 4.5, Model 1 shows the unadjusted association between the pace of emotional relationships and the hazard of having sex at a younger age, among boys and girls separately. The middle category, slow pace of 3-4 emotional relationships is the reference group. Boys who experienced 0-2 emotional relationships were significantly less likely to have sex at a given age than boys who experienced 3-4 emotional relationships slowly (HR=0.12, $p \leq 0.001$). Boys who experienced 3-4 emotional relationships quickly were more likely to have sex at a younger age than boys who experienced the same number of emotional relationships slowly (HR=1.17, $p=0.093$) but this association was not significant at the $p \leq 0.05$ level and the effect dissipates when socio-demographic variables are added to the model (Model 2). After adjustment, the strength and magnitude of the effect of having few emotional relationships remains. In addition, boys who lived in rural areas (HR=0.62, $p \leq 0.001$) and who had higher education (HR=0.94, $p \leq 0.001$) were significantly associated with younger age at first sex. Household wealth and church attendance were not significant in the model.

Among females the association between pace of emotional relationships and hazard of having sex at a younger age was also significant. Model 1 shows that girls who experienced emotional relationships quickly were at significantly increased risk of having sex at a younger age. A hazard ratio for the category that includes girls who experienced only 0-2 relationships was 0 because none of the girls who had few emotional relationships reported ever having had sex. When additional variables were added to the

model, the association between fast pace of emotional relationships and hazard of having sex at a younger age was somewhat attenuated but remained statistically significant (HR=1.47, $p \leq 0.001$). Model 2 shows that girls who go to church frequently are about 40% less likely to have had sex at a younger age (HR=0.62, $p \leq 0.001$), and for each additional year of education, adolescents hazard of having sex at a younger age was reduced by 17% (HR=0.82, $p \leq 0.001$). Wealth was not significantly associated with risk of sex at a younger age among girls and, unlike for boys, rural residence was also not significantly associated with having sex at a younger age.

Table 4.5 Multivariate hazard models predicting risk of having sex at a younger age by pace of emotional relationships and socio-demographics												
	Boys n=1088						Girls n=962					
	Model 1			Model 2			Model 1			Model 2		
	Hazards Ratio	95% CI		Hazards Ratio	95% CI		Hazards Ratio	95% CI		Hazard s Ratio	95% CI	
Few emotional relationships (0-2)	0.12***	0.07	0.22	0.12***	0.06	0.23	0 ^a	---	---	0 ^a	---	---
Fast paced relationships (3-4)	1.17 †	0.93	1.48	1.16	0.96	1.40	1.85***	1.39	2.47	1.47***	1.17	1.85
Wealth				0.92	0.78	1.09				0.89	0.68	1.16
Rural				0.62***	0.49	0.78				0.84	0.62	1.13
Frequent church attendance				0.88	0.69	1.11				0.62***	0.49	0.77
Highest Grade				0.94***	0.90	0.98				0.82***	0.79	0.85

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

^a Cell size was too small to calculate standard error

F. Discussion

One of the primary aims of the present study is to explore the gender differences in precoital behavior. This study finds significant differences between adolescent boys and girls in the Philippines. Girls experience emotional relationships at younger ages than boys do but boys progress through them at a faster pace than females. As in other countries in Asia (Isarabhakdi, 1999; Zulkifli & Low, 2000), boys engage in precoital physical behaviors and sexual intercourse at younger ages than girls do. Over a third of boys report having their first sexual encounter with someone outside of an emotional relationship, including someone they paid, while the overwhelming majority of girls report having sex for the first time with a current romantic partner. The significant differences by sex found here are not unexpected. They confirm the large gender differences in expectations for behavior among girls and boys as reported in other studies from the Philippines (Cruz, Laguna, & Raymundo, 2001; Medina, 2001; Santa Maria, 2002).

The analysis finds that girls who move quickly through emotional relationships are at a significantly higher risk of having sex at a younger age, which provides an important cue for intervention. For boys, experiencing emotional relationships quickly is not associated with an increased risk of having sex at a younger age, perhaps because many boys are having sex outside of their emotional relationships. Urban residence and lower educational attainment are predictors of having sex at younger ages for boys. For girls, in addition to fast pace of emotional relationships, infrequent church attendance and fewer years of education raise their risk of having sex at younger ages.

The present study also examined the pattern of precoital behaviors. Most adolescents in the Philippines proceed in their relationships in an ordered progression, experiencing crushes, courtships, romantic relationships, dating, and then sexual intercourse in that order, as found in national studies in the Philippines (Raymundo, Xenos, & Domingo, 1999) and studies elsewhere (Hansen, Paskett, & Carter, 1999; Lam, Shi, Ho et al., 2002; Pinter & Tomori, 2000; Youn, 1996; Zulkifli, Low, & Yusof, 1995). Based on data on the reported ages at which each adolescent experienced each emotional relationship, boys and girls were at significantly different stages of precoital activity. In the present study it was found that girls and boys have very different definitions of crushes, courtship, and dating. It is possible that different definitions of emotional relationships affect reporting of whether each adolescent has experienced them, and possibly explain the difference between boys and girls.

While most adolescents in the Philippines followed a particular order, many go “out of order” in their emotional relationships. Almost 12% of boys and 16% of girls experience them in an order that was not expected. Girls are significantly more likely to experience skipped patterns than boys. Experiencing skipped patterns is significantly associated with a reduced the risk of ever having sex among girls, but not the age at first sex. This may be explained in that girls who go out of order have significantly fewer romantic relationships ($p=0.04$) than girls who follow an expected order.

Adolescents in the Philippines begin their physical relationships later than adolescents in other developing countries (Singh, Wulf, Samara et al., 2000), and the trend is seen in this sample with only 31% of boys and 20% of girls ages 17 to 19 reporting ever having had sex. Among both boys and girls median age at first sex is 17

and not even half of the sample had had sex yet. By the time all of had sex, the median age at first sex in this sample is likely to be at least a couple of years older.

Their precoital behaviors, however, reveal important cues about their impending sexual activity. Most boys and girls have crushes early on, and a couple of years later they engage in courting, dating, and romantic relationships, all around the same time. It is not until a few years later that they will engage in sexual intercourse. The emotional relationships start earlier in girls, and they wait longer to have sex. As Smith and Udry propose, engaging in precoital behaviors over an extended period of time may serve as an adjustment period in which the girl and boy come to recognize the increased likelihood of sexual intercourse. The adjustment period may provide the time needed to become prepared, mentally, emotionally as well as by obtaining contraception (Smith & Udry, 1985). This “pause” before sex, also presents parents, schools, and adolescent health programs an opportunity to ensure that adolescents can make informed choices about sexual intercourse.

One of the primary pitfalls of the current research is that all data come from adolescent self-reports, and may be subject to recall bias or social desirability bias. Due to the strong conservative culture in the Philippines, the self-reported data may not reflect true behavior. Many adolescents, particularly females, may be especially uncomfortable discussing their sexual behavior and, thus, their reports may be inaccurate. Young men, on the other hand, may over report their sexual experiences, to give the impression that they are conforming to societal expectations (Eggleston, Leitch, & Jackson, 2000; Gregson, Zhuwau, Ndlovu, & Nyamukapa, 2002; Singh, Wulf, Samara et al., 2000).

Because the adolescents have been involved in this longitudinal survey for almost two decades, the interviewers have established strong rapport with the participants, however. While the respondents may be embarrassed to report their sexual behaviors to someone they know well, the interviewers have been trained to reassure the adolescents repeatedly over the years that their responses will be kept confidential.

The findings in the present study can be externally validated with the results from other studies of Filipino adolescents. National data collected in 2002 found that a much lower proportion—26% of boys and 9% of girls ages 17 to 19—report ever having had sex (Commission on Population & United Nations Population Fund, 2003). An unpublished survey using a self-administered questionnaire among 1,196 students ages 15-24 in Dumaguete City in the Philippines found that 50% of boys and 10% of girls were sexually active (Brown, Jejeebhoy, Shah, & Yount, 2001; Cadelina, 1998).

Adolescents in conservative countries are likely to underreport sexual behavior, and therefore estimates that are higher, particularly among girls, are probably more valid. DHS data from 2003 reports that 28% of boys and 21% of girls have had sex by age 19 (National Statistics Office (Philippines) & ORC Macro, 2004). The current data falls well within these ranges with 31% of boys and 20% of girls ages 17-19 having had sex. However, given the cultural norms against premarital sex, these studies may all provide underestimates of true levels of sexual activity.

This study has several important strengths. The CLHNS provides a unique opportunity to consider relationship progression from both a physical and emotional perspective. Rarely do studies consider the behaviors of adolescents before first sex, much less the emotional relationships. In addition, unlike earlier studies, this study

considers the tempo of emotional relationships. Also, many other studies of sexual behavior among adolescents have been done in schools, which exclude young people who are absent, out-of-school, who stay at home or go to work, and may be more likely to engage in high-risk behaviors (Guttmacher, Weitzman, Kapadia et al., 2002; McCrystal, Higgins, Percy et al., 2005). While the results from this study may not apply to cities where premarital sex is more common, such as Manila (Raymundo, Xenos, & Domingo, 1999), the results are likely to be generalizable to other major metropolitan areas. Encompassing both modern and less developed parts, Metro Cebu is similar to many cities throughout the Philippines.

Currently several governmental and nongovernmental initiatives in the Philippines address the reproductive health needs of adolescents; unfortunately, they face many challenges. The largest is addressing the lack of high-level political support for contraception in general and even more so for family planning information and service delivery to adolescents (Human Rights Watch, 2004). Cultural stigma against unmarried youth using contraceptives, negative attitudes among health care providers, pressure from the Church, and lack of adequate supplies at the local health system level all contribute barriers to adolescent sexual and reproductive health (Varga & Zosa-Feranil, 2003).

Programs should reflect the reality of adolescent sexual behavior, however. Based on these findings adolescents indeed are on the course of engaging in sexual behaviors and have immediate reproductive health needs. Boys are sexually active earlier than girls and many are have sex for the first time outside of an emotional relationship. Girls space their emotional relationships more than boys do, but girls who do progress through them quickly are at significantly greater risk of having sex at a younger age. Most girls have

sex for the first time with their current romantic partner. Programs should understand the unique needs of males and females and tailor interventions that address them in different ways. Parents should ensure that their male children are prepared for sexual activity at younger ages. Girls who move quickly through different emotional relationships need to be equipped with the information and access to services to enable them to have safer sex.

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Chapter 5: Manuscript 2

**Do Perceptions of Friends' Behaviors Affect Age at First Sex?
Evidence from Cebu, Philippines**

A. Abstract

Purpose: To explore: a) the effect of perceptions of friends' romantic and physical behaviors on adolescent sexual activity in Cebu, Philippines; b) the temporal order of perceptions of friends' sexual activity and adolescent sexual activity; and c) the relative influence of friends' sexual behaviors and parental attitudes on age at first sex.

Methods: Using longitudinal data from 1,943 adolescents collected in 1998-2000 and 2002 in Cebu, Philippines, logistic regression and proportional hazards analysis were employed to assess whether adolescents' perceptions of friends' sexual behaviors, as measured at ages 14 to 16, increased the odds of having first intercourse, and the hazard of having first intercourse by ages 17 to 19. Final models adjusted for sociodemographics, mother's disapproval of premarital sex, living with a caretaker, and the adolescents' own behaviors, measured at baseline.

Results: Boys and girls who perceived that their friends had ever had boyfriends/girlfriends, dated, held hands, kissed, petted or had sex at ages 14 to 16 were significantly more likely to be engaging in that behavior by ages 17 to 19. For each additional behavior an adolescent perceives his or her friends to be engaging in, the hazard of having sex at an earlier age increases by 1.15 ($p < 0.017$) among boys and by 1.19 ($p < 0.002$) for girls even after adjusting for mother's disapproval of premarital sex and other factors.

Conclusions: These results lend insight into the role of peers in light of competing influences in adolescents' lives. They provide support for asking adolescents at early ages what romantic and physical behaviors they think their friends are engaging

in. With this knowledge, interventions can better prepare adolescents to make responsible and informed decisions about sexuality.

B. Background

Around the world peers strongly influence behavior throughout adolescence. Peers help develop an adolescent's social skills through positive reinforcement (Novak & Pelaez, 2004). An adolescent thinks highly of his or her peers, wants their approval, and strives to be like them. Thus it is likely peers will have a strong influence on adolescent sexual behavior.

Substantial research has established that adolescents are strongly influenced by the sexual attitudes and behaviors of their friends. This relationship is well documented in the US (Kinsman, Romer, Furstenberg, & Schwarz, 1998; Kirby, 2002; Metzler, Noell, Biglan, Ary, & Smolkowski, 1994) and research is finding a similar association in developing countries (Isarabhakdi, 1999; Karim, Magnani, Morgan, & Bond, 2003; Magnani, Seiber, Gutierrez, & Vereau, 2001; Park, Sneed, Morisky, Alvear, & Hearst, 2002). In an international review of risk and protective factors of becoming sexually active, 10 out of 10 studies found an association between the adolescents' perception of their peers' sexual behavior and their sexual experience (Mmari & Blum, 2006). In Ecuador adolescents who thought their peers were sexually active were 2.5 times more likely to have had sex (Park, Sneed, Morisky et al., 2002). A Peruvian school-based study also found that boys having some friends who have had sex were twice as likely to have had sex and girls having some friends who have had sex were 2.5 times more likely (Magnani, Seiber, Gutierrez et al., 2001). In Ghana, male and female youth who

perceived that their friends were sexually active were more than 2 to 3 times more likely to have initiated sexual intercourse than those who perceived that their friends were not sexually active. The magnitude of influence was larger among girls than boys (Karim, Magnani, Morgan et al., 2003).

These results must be taken with caution, however. First, it is unclear whether the adolescents are mimicking the actual or imagined sexual behavior of their peers, or whether once they initiate sexual activity, they tend to associate with others whom they perceive to be sexually active (Hartup, 2005). Most studies examining the timing and determinants of first sex are cross-sectional and thus are unable to sort out the temporal order (Jaccard, Blanton, & Dodge, 2005; Murray, Zabin, Toledo-Dreves, & Luengo-Charath, 1998). Analysis of longitudinal data where information on friends' sexual behavior and other influences are collected before sexual initiation may help sort out the relationship.

Second, innumerable studies have found that adolescents are strongly influenced by their parents' attitudes. Throughout the socialization process, parents transmit their own standards of conduct through their parenting practices and style (Kotchick, Shaffer, Forehand, & Miller, 2001; Meschke, Bartholomae, & Zentall, 2002; Sieving, McNeely, & Blum, 2000). Adolescents tend to choose friends on the basis of their own values which are shaped by their parents' attitudes and rules (Novak & Pelaez, 2004). Thus, parenting behavior is an important direct and indirect source of influence on age at first sex (Huebner & Howell, 2003) as well as the types of friends an adolescent keeps.

Study Setting

Premarital sex is generally not approved of in the Philippines, and this may be explained, in part, by the strong presence of the Catholic Church. The majority of Filipino women have first sexual intercourse after marriage. Nevertheless, premarital sex is becoming more common especially in urban areas, as are many other intimate behaviors such as dating and kissing (Medina, 2001).

Because of moral standards, girls are made to feel guilty about their sexuality, while boys are encouraged to engage in sexual activities (Cruz, Laguna, & Raymundo, 2001; Medina, 2001; Santa Maria, 2002). Males initiate in dating and sexual activities sooner than females. Men are allowed more freedom related to sexuality than women are.

A national 2002 survey of adolescents aged 15-24 found that 33% of first sexual experiences were not planned, and more than half (57%) were either not planned or something they did not want to happen at the time. Males tend to have had more than one sexual partner: 49% of sexually active males have had more than one compared with 11% among women. Condoms were used in only one-fifth of first sexual encounters (Raymundo 2003). (Raymundo, 2003) These data indicate that many Filipino youth are engaging in sexual activity yet are ill-prepared to protect themselves from pregnancy and STIs (Balk, Brown, Cruz, & Domingo, 1997; Raymundo, 2003).

The average age at first sex is still relatively high compared with many other developing countries, however. An analysis of age at first sex in 14 countries using DHS data found that both male and female 15 to 19 year olds and 20 to 24 year olds in the Philippines had the lowest rates of sexual experience (Singh, Wulf, Samara, & Cuca, 2000). It appears to be declining dropping slightly from 18 in 1982 and 1994 to 17.5 in

2002 (Raymundo & Cruz, 2004). Similarly, the proportion of adolescents having premarital sex is increasing (Commission on Population & United Nations Population Fund, 2003; Raymundo, 2003).

A study of premarital sex in 1994 using national data found that boys who plan to go to college and girls who are more religiously active are less likely to be sexually active. For both groups, those who have initiated in substance use are also more likely to have initiated in premarital sex as adolescents, and this effect is particularly strong for females (Choe, Hatmadji, Podhisita, Raymundo, & Thapa, 2003). This data revealed that men who lived in urban areas and with secondary or college educations are more likely to have had premarital sex (Balk, Brown, Cruz et al., 1997). These data were cross sectional, however, and thus, the study is unable to establish temporality.

Friends play a large role in the lives of Filipino youth. The common term “Barkada” is used to describe a close circle of friends that adolescents attend socials and engage in other activities with (Medina, 2001). This time in adolescence is associated with trial and error, learning and experimentation. In the Philippines, friends and peers are among adolescents’ primary sources of information about sex (Commission on Population & United Nations Population Fund, 2003).

C. Hypotheses

The present study aims to explore how perceptions of friends’ behaviors influence age at first sex in Cebu, Philippines. The following hypotheses are tested:

- a. Adolescents who report that their friends are engaging in romantic and physical behaviors in 1998-2000 are more likely to be engaging in those behaviors by 2002 than adolescents whose friends are not engaging in romantic and physical behaviors;
- b. The more behaviors adolescents perceive their friends to be engaging in, the more likely they are to have had sex at an earlier age, controlling for parental attitudes, their own progression through romantic and physical behaviors, and other possible confounders.

D. Methods

Cebu is an island province of the Philippines located in the Central Visayas region. Cebu is one of the most developed provinces in the country. The study area, Metro Cebu, is the second largest metropolitan area in the country, second only to Metro Manila in population. Although it has some rural segments in its peripheries, it still is highly urbanized relative to the rest of the country. The country is predominantly Catholic and the Church plays a strong role in the lives of Filipinos.

Data Collection

The Cebu Longitudinal Health and Nutrition Survey (CLHNS) provided the data for the present study. The CLHNS is an ongoing study of a cohort of over 3,000 Filipino women who gave birth between May 1, 1983 and April 30, 1984. Follow-up surveys in 1998-2000 and 2002 included expansive interviews with the now adolescent children of the women. The 1998-2000 round of the CLHNS occurred over the course of 2 years.

Because of survey implementation issues, the survey was conducted with all girls the first year and the boys the second year.

All surveys were approved by the University of North Carolina School of Public Health Institutional Review Board for research involving human subjects. The 2002 survey and secondary analysis of the data collected were also approved by The Johns Hopkins Bloomberg School of Public Health Committee on Human Research. For each survey round, the risks and benefits were explained to parents and adolescents and written parental informed consent and adolescent assent were obtained. Parents and adolescents were assured that responses would be kept confidential. All names were stripped from the data and identification numbers were used instead to identify participants.

Primary Outcome Variables

The primary outcomes in the analysis are related to the adolescents' sexual activity as measured in 2002 (see Appendix A). The first part of the analysis focused on the determinants of adolescents having experienced several romantic and physical behaviors, including whether they had ever had boyfriends or girlfriends, dated, held hands, kissed, petted, or had sex by 2002. The adolescents who reported doing more than kissing were asked open ended questions about what behaviors they had engaged in, resulting in self-defined measures of having petted or having had sex. These behaviors are described more in depth elsewhere (Upadhyay, Hindin, & Gultiano, 2005). In the second part of the analysis age at first sex as reported in 2002 was the primary outcome of interest.

Primary Independent Variables

The primary independent variables for the analysis were the adolescents' perceptions of their close friends' romantic and physical behaviors as measured in 1998-2000 (see Appendix B). Close friends could include friends of either sex. The adolescents were asked whether they think their close friends have ever engaged in dating, holding hands, kissing or more than kissing. Those who responded that their close friends have done more than kissing were asked what behaviors they think their friends have engaged in, resulting in data on perceptions of friends petting and having sex. The adolescents responded with yes, no, or don't know for each question. For each behavior less than 12% of the adolescents responded "don't know," and in these cases responses were coded as "no."

Adolescents' perceptions of whether their friends were engaging in each of the romantic and physical behaviors were combined to form a single "Friends' Behaviors Score". The variable was formed by adding up each behavior, resulting in a score from 0 to 5.

Also of interest is adolescent perceptions of their mothers' approval of premarital sex and teenage sex. The 1998-2000 survey asked the adolescents whether their mother or caretaker agrees with the following statements:

- Only married couples should have sex
- Boys your age or aged 14-16, should not have sex yet
- Girls your age or aged 14-16, should not have sex yet

If the adolescents thought their mothers would agree to all three statements, they were coded as having mothers who strongly disapproved of premarital sex. If they thought their mothers would disagree to, or they didn't know how their mothers felt about at least one statement, they were coded as not strongly disapproving of premarital sex. Adolescents who were living with a caretaker were asked to report their perceptions of their caretakers' attitudes towards premarital sex.

The analysis adjusted for the adolescents' own romantic and physical behaviors at baseline (1998-2000) including whether the adolescent had ever had a boyfriend or girlfriend, had dated, held hands, or kissed. While all boys were asked whether they had ever kissed, only girls in romantic relationships were asked if they had ever kissed due to concerns about asking them sensitive questions since they were interviewed at an earlier age than the boys. For the purposes of the multivariate analysis, it was assumed that any girl not currently in a relationship had never kissed.

Data Analysis

The analysis was done in four parts. First, the characteristics of the sample from the 1998-2000 (baseline) and 2002 surveys are described. Second, perceptions of friends' sexual behaviors are compared with the adolescents' own behaviors at baseline using McNemar's and paired t-tests to allow for the paired design between adolescents' own reports and their reports on their friends (McNemar, 1947).

Third, logistic regression is employed to explore whether the perception of friends engaging in a romantic or sexual behavior in 1998-2000 is associated with greater odds of the adolescent engaging in that behavior by 2002. Finally, Cox proportional hazards

models are used to prospectively examine how friends' sexual behaviors are associated with age at first sex, taking into account other factors (Cox, 1972; Zaba, Boerma, Pisani, & Baptiste, 2002).

All analyses were done separately for boys and girls because the context within which adolescents form sexual partnerships is strongly gender specific and the determinants of the timing of first sex are quite different between them (Murray, Zabin, Toledo-Dreves et al., 1998; Rani, Figueroa, & Ainsle, 2003; Regan, Durvasula, Howell, Ureño, & Rea, 2004; Singh, Wulf, Samara et al., 2000). All standard errors in the analysis were adjusted for any clustering that would arise due to lack of independence of adolescents from the same barangay (community). All analyses were conducted using STATA version 7 (Stata Corporation, 2003).

Study Sample

The descriptive analyses (parts 1 and 2) include 2,117 adolescents from the baseline survey (1998-200) and 2,050 adolescents from the 2002 survey. Between surveys, 101 adolescents were lost to follow up mainly due to out migration. A comparison of sociodemographic variables and friends' sexual behaviors at baseline found no significant differences between those who migrated out and those who stayed in the sample. In the 2002 survey, 35 adolescents who were not captured in the 1998-2000 survey, were located and added back to the sample. Thus, the 2002 survey includes a total of 2,050 adolescents.

In order to build a truly prospective design, the multivariate analysis (parts 3 and 4) was limited to only those adolescents who did not already have sex by the date of their

1998-2000 survey, using their age at first sex as reported retrospectively in 2002. Thus 69 boys and 4 girls were removed leaving a sample of 1943 adolescents (1,002 boys and 941 girls) for the multivariate analysis.

E. Results

Major sociodemographic characteristics of the sample in 1998-2000 (at baseline) and in 2002 are presented in Table 5.1. There were no unexpected significant differences between boys and girls within or across survey rounds.

Table 5.1 Characteristics of the adolescent sample, by sex				
	1998-2000		2002	
	Males	Females	Males	Females
Age (mean)	15.6	14.6	18.2	18.2
Range (SD)	15-16 (0.49)	14-16 (0.50)	17-19 (0.39)	17-19 (0.42)
Urban (%)	74.2	74.8	74.2	74.8
Frequent church attendance (3 or more times/month) (%)	58.9	72.0	39.9	58.3
Highest grade completed (mean)	8.7	8.8	9.7	10.8
Range (SD)	9-12 (2.42)	1-11(1.70)	0-16 (2.86)	1-14 (2.23)
Ever had sex (%)	2.3 ^a	0.2 ^a	30.8	19.5
N	1,110	1,007	1,089	962

^aNote: The 1998-2000 survey asked only those adolescents who were in romantic relationships about sexual experience, due to concerns about asking sexually explicit questions.

Perceptions of Friends' Behaviors

The adolescent's perceptions of their friends' behaviors were significantly different from their own reported behavior. Both boys and girls reported that their friends' were engaging in behaviors at significantly higher rates than they themselves engaged in the behaviors (see Table 5.2).

Table 5.2 Comparison of reported behaviors among friends and adolescents, by sex, 1998-2000						
	Males			Females		
	% who believe their friends (n=1,110)	% who have reported that they themselves (n=1,110)	p ¹	% who believe their friends (n=1,007)	% who have reported that they themselves (n=1,007)	p ¹
Have boyfriends/girlfriends	69.73	34.05	0.001	62.46	18.27	0.001
Have dated	67.03	35.14	0.001	54.12	22.64	0.001
Have held hands	64.50	37.21	0.001	52.63	27.01	0.001
Have kissed	40.45	24.77	0.001	20.36	— ²	
Have petted	1.62	— ²		0.79	— ²	
Have had sex	6.22	— ²		1.79	— ²	
Mean total friends' behavior score	2.50	1.35		1.92	0.76	
Range (SD)	0-5 (1.77)	0-5 (1.75)		0-5 (1.59)	0-5 (1.24)	

¹Note: McNemar's Tests used to calculate p-values for comparisons of proportions and paired t-tests used to calculate p-values for comparison of means.

²Note: The 1998-2000 survey asked all boys about kissing but only girls if they were in romantic relationships. The survey asked only those boys and girls who were in romantic relationships about petting, or sexual experience, due to concerns about asking sexually explicit questions.

Odds of Engaging in Behaviors by 2002

Bivariate logistic regression showed that perception of friends engaging in a behavior in 1998-2000 was significantly associated with adolescent reports of engaging in that behavior themselves by 2002. Almost all unadjusted odds ratios were significant at the level of $p < 0.001$. Even after adjusting for residence, church attendance, and education, these associations remained strongly significant. The primary exception was petting for both boys and girls (see Table 5.3).

Table 5.3 Odds of engaging in a behavior by 2002 if friends have engaged in the behavior by 1998-2000				
	Males		Females	
	Unadjusted OR	Adjusted OR ^a	Unadjusted OR	Adjusted OR ^a
Having boyfriends/girlfriends	2.81***	2.85***	2.60***	2.59***
Dating	2.98***	2.96***	2.86***	2.86***
Holding hands	2.62***	2.59***	2.95***	3.00***
Kissing	3.10***	3.20***	3.75***	3.62***
Petting	2.16*	2.16†	1.01	0.80
Ever had sex	2.62***	2.49**	4.99**	3.97*
Total friends' behavior score	1.64***	1.63***	2.04***	2.05***
N	1,002	1,002	941	941

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

^a Odds ratios adjusted for urban/rural residence, church attendance, and education

All models adjusted for clustering by barangay

Mothers' Influence

The great majority—88% of boys and 96% of girls said they thought their mother (or caretaker) would agree to all three statements that assessed strong disapproval of premarital or teen sex. About 12% of boys and 4% of girls said they thought their mother would disagree to at least one statement, or they did not know how their mothers felt about at least one statement. This difference was significantly different between boys and girls ($p < 0.0001$) and in the expected direction in a setting that has more conservative views about sexual behavior for women.

Almost 10% of boys and 6% of girls were living with a non-parental caretaker in 1998-2000. Most caretakers were aunts, grandmothers, sisters or non-relatives. A few of the adolescents reported living with an employer. Adolescents living with caretakers were

no more or less likely to be disapproving of premarital sex than those living with their parents.

The effect of maternal disapproval was strongly associated with age at first sex. The independent effect of maternal disapproval was associated with a lower risk of having sex at an earlier age among boys (HR=0.71, $p<0.05$), and among girls (HR=0.51, $p<0.0001$).

Multivariate Hazards Models: Friends Influence on Age at First Sex

After confirming that the proportionality assumption was met using Kaplan Meier plots (not shown), hazards models were run to assess the factors associated with the hazard of having sex by a given age. The analysis examined the influence of the composite Friends' Behaviors Score based on perceptions of friends' behaviors in 1998-2000. Table 5.4, Model 1 shows the association between the perception of friends' behaviors score and age at first sex by 2002. Model 2 shows the same association after controlling for perceptions of mothers' disapproval of premarital sex as measured in 1998-2000. Finally, Model 3 shows the same associations but additionally controlling for other sociodemographic variables and the adolescent's own romantic and sexual behaviors as measured in 1998-2000.

Among boys, the friends' behavior score was significantly associated with age at first sex (HR=1.30, $p<0.0001$) in the bivariate (model 1). For each additional behavior a boy perceived his friends to be engaging in, his hazard of having sex at an earlier age increased by 1.30. When mothers' disapproval was added to the model with the friends' behavior score (model 2), the friends' behavior score remained strong but the

significance of mothers' disapproval was attenuated (HR=0.76, $p<0.09$). In the final model (model 3), adjustment for residence, church attendance, education, currently residing with a caretaker, and the boys' own romantic and physical behaviors further attenuated the influence of friends' behaviors but it remained statistically significant (HR=1.15, $p<0.02$). Rural residence (HR=0.66, $p<0.0001$) and more years of schooling (HR=0.91, $p<0.0001$) also reduced the hazard of having sex at an earlier age. Among the boys' own behavior variables, having ever kissed and having ever held hands were associated with earlier age at first sex.

Among the girls, for each additional behavior a girl perceived her friends to be engaging in, her hazard of having sex at an earlier age increased by 1.38 ($p<0.0001$) (model 1). When mothers' disapproval was added to the model with the friends' behavior score, both covariates remained strongly significant and relatively unchanged (model 2). In the final model (model 3), the magnitude and significance of the friends' behaviors score were attenuated somewhat (HR=1.19, $p<0.002$), after adjusting for sociodemographic variables, including, residence, church attendance, and education, currently residing with a caretaker, and the adolescents' behaviors in 1998-2000. Like the boys, education was protective (HR=0.91, $p<0.0001$), but rural residence was not. Living with a caretaker was significantly associated with the hazard of having sex at a younger age (HR=1.91, $p<0.018$). Among the girls' romantic and sexual behaviors, having had a boyfriend (HR= 2.20, $p<0.002$) and holding hands (HR=1.60, $p<0.002$) were strongly associated with age at first sex.

Table 5.4 Multivariate hazard models predicting risk of having sex by friends' sexual experience, socio-demographics, and mothers' influence

	Boys n=1002								
	Model 1			Model 2			Model 3		
	HR	95% CI		HR	95% CI		HR	95% CI	
Friends Behavior score	1.30***	1.18	1.45	1.30***	1.18	1.45	1.15*	1.02	1.28
Strong maternal disapproval				0.76†	0.55	1.04	0.85	0.64	1.13
Residing with a Caretaker							1.12	0.76	1.64
Adolescent has had a girlfriend							1.19	0.54	2.62
Adolescent has been on a date							1.35	0.85	2.14
Adolescent has held hands							1.58†	1.00	2.52
Adolescent has kissed							1.49*	1.00	2.19
Rural Residence							0.66***	0.54	0.80
Frequent church attendance							0.95	0.74	1.22
Highest Grade							0.91***	0.87	0.94

	Girls n=941								
	Model 1			Model 2			Model 3		
	HR	95% CI		HR	95% CI		HR	95% CI	
Friends Behavior score	1.38***	1.22	1.57	1.38***	1.23	1.56	1.19**	1.07	1.33
Strong maternal disapproval				0.48***	0.32	0.74	0.55**	0.37	0.82
Residing with a Caretaker							1.91*	1.12	3.27
Adolescent has had a boyfriend							2.20**	1.34	3.63
Adolescent has been on a date							0.86	0.57	1.30
Adolescent has held hands							1.60**	1.13	2.24
Adolescent has kissed							1.34	0.92	1.95
Rural Residence							1.02	0.78	1.32
Frequent church attendance							0.87	0.60	1.28
Highest Grade							0.88***	0.83	0.92

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

Note: All models adjusted for clustering by barangay

F. Discussion

This study finds that perceptions of friends' behaviors strongly affect adolescent sexual behavior. The longitudinal nature of the CLHNS data provides a unique opportunity to clarify this relationship by establishing the temporal order and by controlling for several potential confounders, measured well before first sex. The results of the analysis show that the influence of perceived peer behaviors has an impact on adolescent sexual initiation above and beyond adolescents' trajectory of sexual behaviors measured in 1998-2000. The influence is also strong even after adjusting for maternal influence.

Both boys and girls who perceive that their friends are engaging in certain romantic and physical behaviors in 1998-2000 are more likely to be engaging in that behavior by 2002 than those who did not perceive their friends to be engaging in the behavior, even after adjusting for sociodemographic variables. Also, the more behaviors that adolescents perceive their friends to be engaging in in 1998-2000, the greater the adolescents' risk of having sex at an earlier age. This effect persists among both girls and boys even after controlling for mothers' disapproval of sex, living with a caretaker, residence, church attendance, education and the adolescent's own behaviors at baseline.

The current analysis finds that adolescents in the Philippines report their friends are engaging in romantic and physical behaviors at very high rates, higher than they report they themselves are. Adolescent reports of peer behaviors may not reliably measure peer actual behaviors, as they are a measure of what adolescents think their peers are doing (Kinsman, Romer, Furstenberg et al., 1998). Another explanation for this discrepancy is that adolescents are underreporting their own behaviors but feel more comfortable reporting their friends' behaviors.

Living with a caretaker was found to increase the risk of having sex at an earlier age among girls, but not among boys. This finding is not surprising based on the results that girls are strongly influenced by their mother's opinions on sex. Consistent with other studies, mothers influence the timing of first sex of their daughters more than their sons (McNeely, Shew, Beuhring, Sieving, Miller, & Blum, 2002; Mmari & Blum, 2006). When girls are not living with their mother, they may lose the protective effect that mothers provide. Young people in the Philippines commonly work as domestic workers and live with their employers. In 1995 there were almost 300,000 domestic workers ages

15 to 19 nationwide. A 2001 International Labor Organization survey counted 120,000 children living away from home employed in private households, most of them were girls (Flores-Oebanda, Pacis, & Alcantara, 2004; Murray, 2004).

Limitations and Strengths of the Study

One of the primary concerns in the current research is that all data come from adolescent self-reports, and may be subject to recall bias or social desirability bias. Due to the strong conservative culture in the Philippines, the self-reported data may under-represent true behavior (Gregson, Zhuwau, Ndlovu, & Nyamukapa, 2002; Singh, Wulf, Samara et al., 2000). When compared with the results from nationally representative data on adolescents in the Philippines, the results from the current study appear valid.

Demographic and Health Surveys data from 2003 show that 28% of boys and 21% of girls have had sex by age 19 (National Statistics Office (Philippines) & ORC Macro, 2004). The current data falls well within these ranges with 31% of boys and 20% of girls ages 17-19 having had sex.

Another limitation of the current study is that, mothers' disapproval alone does not represent parental approval. A measure which captures the adolescents' perceptions of both mothers' and fathers' attitudes towards premarital sex would have been more valid for the study. Also, as a categorical variable, the variable assessing mothers' disapproval had little variability and is highly skewed. Only 12% of boys and 4% of girls reported some uncertainty about their mothers' approval of premarital sex. These limitations may under-represent the influence of parental attitudes.

This study has several important strengths. Many other studies of adolescent sexual behavior are done in schools, which exclude those who are out-of-school, stay at home or go to work, and may be more likely to engage in high-risk behaviors. This study is representative of all adolescents in Cebu since there were no selection criteria when their pregnant mothers were first enrolled in 1983-84. Other than losses to follow up, these cohort data should be generalizable to other major urban areas in the Philippines.

The finding that perceptions of friends' behaviors have a strong influence on adolescents' behavior provides support for asking adolescents at early ages about what romantic and physical behaviors they think their friends are engaging in. This information can help better tailor prevention messages. Programs can intervene with such adolescents early and ensure that they are able to make responsible and informed decisions about their sexuality.

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Chapter 6: Manuscript 3

Marital Relationships and Women's Status: Intergenerational Effects on Adolescents' Age at First Sex

A. Abstract

Purpose: This study seeks to examine additional, less explored pathways in which parents influence their adolescent children's sexual behavior. Specifically, two aspects of the home environment that parents create include marital relationships and women's status.

Methods: The study employs data from the Cebu Longitudinal Health and Nutrition Survey (CLHNS) in the Philippines and includes a sample of 933 boys and 858 girls and their mothers. The mothers were interviewed in 1994 when their children were ages 9 to 11, about sociodemographic characteristics, their marital relationships, and women's status issues. Mothers were interviewed again in 1998 and the children were also interviewed at this time, at ages 13 to 15. Their children were interviewed again in 2002, at ages 17 to 19, when they reported on their sexual experience. Cox proportional hazards models were used to assess time to age at first sex.

Results: After multivariate adjustment, the analysis found that for each decision in which fathers have final say, as reported by surveyed mothers, age at first sex is significantly younger among boys (HR=1.09, p=0.02). Having a mom whose marital status changed in early adolescence was also associated with a younger age at first sex for both boys (HR=1.46, p=0.04) and girls (HR=2.35, p<0.001). Girls who had mothers who scored highly on a locally defined rating of women's status were less likely to have sex at a younger age (HR=0.64, p=0.02). These associations could not be explained by parenting style. The influences of marital relationships and women's status on age at first

sex were different for male and female adolescents. A gender interaction analysis based on a model that includes both girls and boys revealed that the hazards ratios for urban, the locally defined measure of women's status, and for husband turning over all of his income to his wife are significantly different between girls and boys.

Conclusions: Programs that aim to prepare adolescents for sexual activity must acknowledge the strong influence of parents. Family life has a strong influence on children in ways that many are unaware of. Parental relationships in which decision making is individual and not cooperative can have long-term effects on children. A family atmosphere that fosters women's status and equity among parents may lead to delayed first intercourse among girls. While a change in marital status is sometimes inevitable, creating a cooperative home environment in early adolescence, with joint decision making between parents and high status of women, may lead to delayed first sex years later.

B. Background

Age at first sex has been well studied in developed and developing countries (Gupta, 2000; Mensch, Clark, Lloyd, & Erulkar, 2001; Upchurch, Levy-Storms, Sucoff, & Aneshensel, 1998). Age at first sex is of particular interest because it is an important indicator of exposure to the risk of pregnancy and sexually transmitted infections (Zaba, Boerma, Pisani, & Baptiste, 2002). Those who have first sex at an earlier age are more likely to have more lifetime partners, to have multiple and concurrent partners, to not use contraceptive methods, to get infected with HIV or other STIs, and to have higher rates of unwanted pregnancies (Blanc & Way, 1998; Greenberg, Magder, & Aral, 1992; Manlove, Ryan, & Franzetta, 2003; Miller, Clark, Wendell, Levin, Gray-Ray, Velez et al., 1997). In Hong Kong early sexual activity was related to psychological distress and other health risk behaviors (Lam, Stewart, & Ho, 2001).

Parents have a strong influence on adolescent sexual behavior as well as other health outcomes (Meschke, Bartholomae, & Zentall, 2002; Miller, Benson, & Galbraith, 2001). Much of the US literature on parents' influence focuses on the parent-child relationship, including parent-adolescent communication and connectedness, parental monitoring, and parenting style (Huebner & Howell, 2003; Jaccard, Dittus, & Gordon, 1996; Newcomer & Udry, 1985; Rodgers, 1999). Most studies have found that in general, adolescents are more likely to delay first sex when parents communicate with their children, provide support, are emotionally close, monitor social activities, and set firm rules (Meschke, Bartholomae, & Zentall, 2002; Miller, Benson, & Galbraith, 2001).

The current study seeks to examine additional, less explored pathways in which parents influence their adolescent children's sexual behavior. Specifically, two aspects of

the home environment that parents create include marital relationships and women's status. Very little has been published on these influences on adolescent sexual behavior and even less of the research comes from developing countries.

Marital Relationships and Adolescent Health Outcomes

Very little is known about the influence of marital relationships on children and adolescents. A large body of literature, mainly from the US, examines the effects of family structure on adolescent sexual behavior. Adolescents in single parent and step parent households are more likely to have ever had sex or more likely to have had sex at an earlier age than those in two biological parent households (Blum, Beuhring, Shew, Bearinger, Sieving, & Resnick, 2000; Flewelling & Bauman, 1990; Santelli, Lowry, Brener, & Robin, 2000; Young, Jensen, Olsen, & Cundick, 1991). Studies usually attribute this association to reduced parental monitoring and supervision. In two-parent homes there are two adult role models available for guidance and emotional support, as well as greater financial stability.

In fact, changes in family structure could influence adolescent sexual behavior through several pathways (Davis & Friel, 2001). Family disruptions cause changes in family income, residence, and parent-child interactions that could explain the negative impact on adolescent well being (Davis & Friel, 2001). Additionally, the conflict that occurs between parents during family disruption affects children emotionally (Amato, 2001; Amato & Keith, 1991). Boys tend to adjust better to such interparental conflict than girls (Davies & Lindsay, 2004). Researchers have called for more longitudinal

research to better understand the effects of marital conflict over time (Cummings & Davies, 2002).

Another indicator of the quality of marital relationships is household decision making. When social norms prescribe joint household decision making, it is likely that primary decision making by the husband or wife is a marker of discord or conflict. The influence of husband and wife household decision making power on adolescent health outcomes has not been previously examined. One study looking at educational outcomes found that in the Philippines, adolescents whose parents did not make joint household decisions were less likely to finish secondary school and attained fewer grade levels (Hindin, 2005).

Women's Status and Adolescent Health Outcomes

Women's status usually encompasses several socio-demographic variables, such as level of education, whether she works for pay, and how much she contributes financially to the household (Hindin, 2000; Jejeebhoy, 1991; Schuler & Hashemi, 1994). A growing body of research indicates that many of these qualities have a beneficial influence on child health outcomes. For example, studies have demonstrated an association between women's status, as measured by high social power in the household, autonomy, education, greater income relative to the husband, or economic worth, and better child nutrition (Doan & Bisharat, 1990; Simon, Adams, & Madhavan, 2002), higher levels of child immunization (Basu & Koolwal, 2005; Desai & Alva, 1998), increased height-for-age (Desai & Johnson, 2005), and reduced child mortality (Basu & Koolwal, 2005; Jejeebhoy, 1995).

Only a couple of studies have examined the longer term effects of women's status on the health of their children. A qualitative study in Bangladesh found that empowered mothers were more likely to encourage their daughters and daughters-in-law to delay their first pregnancies and childbirths, supported their daughters' education (prior to marriage), and helped them obtain jobs (before and after marriage) (Schuler, M.Bates, Islam, Islam, Maselko, & Mailman, 2005). Another study in Bolivia found that high maternal education is associated with improved child caretaking practices among their adult children (Bender & McCann, 2000).

It seems plausible that families in which the mother has high status would raise children, who delay sexual activity, particularly in a setting that has conservative views on premarital sex. Such households are likely to cultivate an environment of equity for boys and girls. A US study found that fathers' encouragement of androgynous behavior in their daughters led to their delayed sexual activity (Bowling & Werner-Wilson, 2000). Another study in Kenya found that girls going to schools characterized by a gender-neutral atmosphere were more likely to delay sexual activity than those going to other schools (Mensch, Clark, Lloyd et al., 2001). The authors speculate that an environment that is more supportive of girls will equip them with the facility to ward off unwanted attention from boys or to delay sexual activity until their education is completed. Therefore, families that institutionalize a culture of gender-equity in the household are also likely to empower girls to refuse unwanted sex and delay their first experience until they are able to make informed, healthy decisions (Kalof, 1995).

Women's status and marital relationships in the Philippines

Individual status is strongly shaped by forces operating at the household, community, and national level (Mason, 1997). In the Philippines, social norms allocate a high degree of power in household decisions to women. Filipina women have greater autonomy than women in the rest of Asia and elsewhere in the developing world, a position held since the pre-Spanish era when customary laws gave women the right to be equal to men, to own and inherit property, or to engage in trade (Mason, 1997; Medina, 2001).

Today, while men retain formal authority in the Philippines, it is generally accepted that for most domains in marriage, decisions are made jointly (David, 1994; Hindin & Adair, 2002; Medina, 2001). Men often hand over part or all of their income to their wives. Wives usually take care of the economics of the household, including handling the family budget, and have significant influence over their husbands in household decisions (Hindin & Adair, 2002; Medina, 2001; Upadhyay & Hindin, 2003). In a study on household decision making, David (1994) finds that Filipina women with more education have more influence in the financial and family planning realm, while men with more education are more involved in the household budget. Most decisions are made jointly, except for family planning matters. Here, the wishes of the husbands emerge as more dominant (David, 1994).

In addition to traditional roles of bearing and rearing children, making a home, and rendering domestic services, women's roles have expanded to the more public spheres as well. Women are becoming economically and psychologically independent as co-breadwinners and co-managers of the household (Hindin & Adair, 2002; Medina,

2001). Filipina women are known for their creativity, business acumen, and entrepreneurial skills. Many wives have become equal partners to their husbands in supporting the family economically by engaging in cottage industries and other small-scale business (Medina, 2001).

Adolescent Sexual Behavior in the Philippines

Premarital sex is generally not approved of in the Philippines, and this may be explained, in part, by the strong presence of the Catholic Church. The majority of Filipino women have first sexual intercourse after marriage. Nevertheless, premarital sex is becoming more common especially in urban areas, as are many other intimate behaviors such as dating and kissing (Medina, 2001).

Because of moral standards, girls are made to feel guilty of their sexuality, while boys are encouraged to engage in sexual activities (Cruz, Laguna, & Raymundo, 2001; Medina, 2001; Santa Maria, 2002). Males initiate in dating and sexual activities sooner than females. Men are allowed more freedom related to sexuality than women. Many Filipino youth consider it natural for males to have multiple partners (Medina, 2001; Santa Maria, 2002). In contrast, social norms about young women's behavior tend to be conservative. Females are expected to control and set limits on male sexuality (Medina, 2001; Santa Maria, 2002). Philippine society continues to uphold the value of "hiya" or shame which deeply influences the behavior of girls and women (Cruz, Laguna, & Raymundo, 2001).

A national 2002 survey of adolescents aged 15-24 found that 33% of first sexual experiences were not planned, and more than half (57%) were either not planned or

something they did not want to happen at the time. Males tend to have had more than one sexual partner: 49% of sexually active males have had more than one partner compared with 11% among women. Condoms were used in only one-fifth of first sexual encounters (Raymundo, 2003). These data indicate that many Filipino youth are engaging in sexual activity yet are ill-prepared to protect themselves from pregnancy and STIs (Balk, Brown, Cruz, & Domingo, 1997; Raymundo, 2003).

The average age at first sex is still relatively high compared with many other developing countries. An analysis of age at first sex in 14 countries using DHS data found that both male and female 15 to 19 year olds and 20 to 24 year olds in the Philippines had the lowest rates of sexual experience (Singh, Wulf, Samara, & Cuca, 2000). Age at first sex in the Philippines appears to be declining, dropping slightly from 18 in 1982 and 1994 to 17.5 in 2002 (Raymundo & Cruz, 2004). Similarly, the proportion of adolescents having premarital sex is increasing (Commission on Population & United Nations Population Fund, 2003; Raymundo, 2003).

With rising rates of adolescent sexual activity, it becomes important to understand the contextual factors around adolescents' initiation of sexual activity. In the Philippines, families have strong influence on children. Young people are socialized to place high value on family solidarity. Filipinos commonly believe that close warm ties among family members must be maintained and that sacrifices must be made for the good of the family (Santa Maria, 2002). Therefore, it is likely that the family environment that parents create will influence adolescent sexual activity as well as point to strategies to protect adolescents from unwanted and uninformed sexual activity.

C. Hypotheses

The present study uses data collected from mothers in 1994 and in 1998 about their marital relationship and women's status and examines outcomes among their adolescent children in 2002. The study tests the following hypotheses:

- a. Adolescents whose parents have a more harmonious relationship marked with more joint decision-making and more stability are more likely to have first sex at an older age than adolescents whose parents have a less harmonious relationship.
- b. Adolescents whose mothers have higher status are more likely to have sex at an older age than adolescents whose mothers have lower status.
- c. The associations between women's status, marital relationships and age at first sex are different for male and female children.

D. Methods

Study Setting

Cebu is an island province of the Philippines located in the Central Visayas region. Cebu is one of the most developed provinces in the country. The study area, Metro Cebu, is the second largest metropolitan area in the country, second only to Metro Manila in population. Although it has some rural segments in its peripheries, it still is highly urbanized relative to the rest of the country. The country is predominantly Catholic and the Church plays a strong role in the lives of Filipinos.

Data Collection

The Cebu Longitudinal Health and Nutrition Survey (CLHNS) provides the data for the present study. The CLHNS began as a joint endeavor of the Carolina Population Center, University of North Carolina at Chapel Hill, the Nutrition Center of the Philippines, Manila, and the Office of Population Studies, University of San Carlos, Cebu City. It is part of an ongoing study of a cohort of Filipino women who gave birth between May 1, 1983 and April 30, 1984. The CLHNS followed all women pregnant in 1983-84 and their newborns (the index children) in Metro Cebu. The study initially included over 3,000 women and includes follow-up surveys conducted in 1991-92, 1994-95, 1998-2000, and 2002. The CLHNS follow-up surveys in 1998-2000 and 2002 also included expansive interviews with the now adolescent index children. The current study relies on data provided by the mothers in 1994-95 and their children in 2002.

All surveys were conducted as approved by the University of North Carolina School of Public Health Institutional Review Board for research involving human subjects and the 2002 survey was also approved by The Johns Hopkins Bloomberg School of Public Health Committee on Human Research. For each survey round, the risks and benefits were explained to parents and adolescents and written parental informed consent and adolescent assent were obtained. Parents and adolescents were assured that responses would be kept confidential. All names were stripped from the data and identification numbers used instead to identify participants.

Most adolescents were interviewed in their homes. In some cases, it took the interviewers several visits to the household or to other households to complete the

interview. On average each interview took a total of two sessions making up a total of 2.5 hours to complete.

Sample

The 1994–95 survey included 2,279 women (68% of the original participants) with much of the loss to follow-up occurring in the early years of the CLHNS due to outmigration, refusal, and non-singleton, non-live birth pregnancy outcomes (Cebu Study Team, 1989). The 1998 survey included 2,212 women and 2,117 adolescents. The 2002 survey included 2113 women and 2,051 adolescents.

The sample for the current analysis is limited to all women for whom data are available in 1994, 1998 and for whom 2002 data are available for their adolescent children. The total final sample is 1,791 women and adolescent pairs, including 933 boys and 858 girls.

Primary Outcome Variable

The primary outcome is the adolescents' age at first sex as reported in 2002, when they are ages 17 to 19. Respondents were asked if they had ever had sexual intercourse and those who said yes, were asked, "At what age did you first have sexual intercourse?"

Primary Independent Variables

The analysis examines the effects of four sets of variables. The first set of variables in the analysis include socio-demographic characteristics, including a household wealth index, based on Filmer and Pritchett's index (Filmer & Pritchett, 2001), whether

the adolescent lives in an urban area, mother's age, mother's schooling in number of years, and mother's church attendance.

The second set of variables relates to women's status, including whether the wife works at home and whether the husband turns over all of his income to his wife (which is characterized as normative behavior locally). It also includes a variable for women's status, which is a locally defined measure based on qualitative interviews where women were asked about how they themselves would define a "high status" women. Three measures have been used in the CLHNS: whether the house, children and woman are well-kept. The CLHNS interviewers assessed each woman and her household at the time of interview (see Appendix C for questions).

Third, marital relationships are examined including changes in marital status—whether the wife is still married to the same man in 1998 as in 1994, whether she is still unmarried, separated, or widowed since 1994, or whether the wife is newly separated, widowed, or married. It also includes a variable for whether the husband beats the wife.

Marital relationships also include three indices that assess wives' and husbands' household decision making power and joint decision making. These indices were developed by adding up the total number of decisions in which the wife has final say in decisions, the husband has the final say in decisions, and in which final decisions are made jointly. The decision module of the survey asks who in the household decides about ten household decisions: 1) major purchases, 2) whether the wife works outside the home, 3) wife traveling outside Cebu, 4) family planning use 5) which family planning method to use, 6) buying wife's shoes, 7) buying children's clothes, 8) children's schooling, 9) taking children to the doctor, and 10) giving gifts to relatives. The module

also asked about who has the final say in decisions about buying or selling land and hiring household help, but these two variables were dropped from the analysis since few households had hired help or owned land. For each decision, women were asked 1) Do you consult with someone when you have to decide on this matter? If yes, who do you consult? 2) Whose will prevails on this matter? Most decisions involved husbands and/or wives having the final say, with only a small minority involving other household members. This index was used in other analyses and successfully predicted the length of birth intervals (Upadhyay & Hindin, 2003) and intimate partner violence (Hindin & Adair, 2002) (see Appendix C for questions).

Finally, the analysis examines the influence of parenting style, since so much of the literature attributes parental influences to their style. There are four questions from the 1998-2000 survey that are used as measures of parent-child relationship. Each adolescent was asked “Do you think your mother is strict?” and “Do you think your father is strict?” Those questions were coded simply as yes or no. In addition, the adolescents were asked “How close do you think you are to your mother?” and “How close do you think you are to your father? The respondents’ options were close or not close. These four questions are analyzed as approximations to Baumrind’s (1991) parenting styles of authoritative (strict and close), authoritarian (strict, not close), permissive (not strict, close), and neglectful (not strict, not close) (Baumrind, 1991). To create these variables, the original dichotomous variables of strict and close are used. For example, respondents are considered to have authoritative mothers if they report that their mothers are both strict and close. This method of recreating Baumrind’s parenting styles

was used successfully to predict adolescent education attainment in the Philippines (Hindin, 2005).

Analysis Plan

The analysis was done in 4 parts. First the characteristics of the sample are described. Next, the proportionality assumption of age at first sex is tested using Kaplan-Meier curves. Then the bivariate associations between socio-demographic characteristics, women's status and marital relationships and the outcome, age at first sex, are explored. Finally, a block modeling approach is used to introduce sets of variables into the model to better understand the effects of each group of influences on adolescents' age at first sex. Since we found that most of the results were not attenuated in the presence of other blocks of variables, we only present the final models.

Because first sex is a discrete-time, nonrepeatable event (Whitbeck, Yoder, Hoyt, & Conger, 1999), the most appropriate method for estimating time to first sex is survival analysis (Zaba, Boerma, Pisani et al., 2002). Survival analysis is preferable in modeling time to first sex because it censors cases that have not had sex by the end of the analysis period. It allows for the inclusion of time that participants contribute to the analysis between the collection of independent variables up to the time they are censored or have first sex. If the data are proportional, Cox proportional hazards methods, which estimate the instantaneous risk of having first sex taking into account the effect of covariates, are useful particularly in longitudinal studies (Cox, 1972). The hazards models control for such demographic variables as, mother's place of residence, age, education and church attendance. All standard errors in the analysis are adjusted for

clustering based on barangays (communities). All analyses were conducted using STATA version 9 (Stata Corporation, 2005).

The primary analyses are done separately for boys and girls using stratified models because the context within which adolescents form sexual partnerships is strongly gender specific (Brown, Jejeebhoy, Shah, & Yount, 2001) and the determinants of the timing of first sex are quite different between them (Mensch, Clark, Lloyd et al., 2001; Murray, Zabin, Toledo-Dreves, & Luengo-Charath, 1998; Rani, Figueroa, & Ainsle, 2003; Singh, Wulf, Samara et al., 2000; Upchurch, Levy-Storms, Sucoff et al., 1998). All tables are presented with boys and girls separately; however, in order to see if there is a significant difference in the predictors of timing of first sex by sex, a combined model is used with a gender interaction terms.

In the final model, decision making in marital relationships are presented in two ways. First decisions in which the wife and the husband have final say are presented together in the same model. Then the same model is run, except with joint decision making in place of the two individual decision making indices. Only the coefficients for joint decision making are presented, although the full model adjusts for all of the other socio-demographic characteristic, women's status, and marital relationship variables.

E. Results

The final sample includes mothers of 933 boys and 858 girls. The mothers' characteristics in 1994 are presented in Table 6.1. Most women lived in urban settings. Their mean age was about 38 years and they had a mean of almost 8 years of education. More than half of mothers attended church once a week or more. For most household

decisions women had the final say, although decisions are also frequently made jointly. On average, husbands had the final say in very few household decisions. Just over one-fourth of women reported their husbands handed over all of their income to their wives. Most women (about 90%) were married to the same men in 1998 as they were in 1994. Between 5% and 7% of women separated, widowed, or became newly married between 1994 and 1998. About three-fourths of women worked outside the home and interviewers rated less than half of mothers as being high status, based on how well kept their household and children were, as well as how well kept the women were themselves.

Adolescents reported on their perceptions of their parents' parenting style in the 1998 interview. Among the respondents, the greatest majority of both boys and girls rated their mothers and fathers as permissive with 79% of boys and 60% of girls reporting that their mothers were close but not strict. Not all in the sample responded to the questions because some fathers were absent and some children were not living with one or both parents. Overall, there were significant differences in adolescents' reports of parenting style with males reporting more permissive parenting and females reporting more authoritarian parenting.

The adolescents are ages 17 to 19 by 2002. Among boys, 31% have ever had sex and the average age among those who have had sex is 16.31, as reported in 2002. Among girls, 18% have had sex and the average age among those who have had sex is 16.60. Kaplan Meier plots highlight the age differences as well as the over difference in cumulative incidence of first sex by sex (see Figure 6.1).

Table 6.1 Characteristics of the parents		
Parental Characteristics	% or Mean	
	Males	Females
Sociodemographic characteristics (1994)		
Household wealth index, mean (range=-1.28-2.26)	-0.1	-0.2
Urban residence	72.7	72.6
Mother's age, mean (range=25-59)	37.9	37.9
Mother's education (years), mean (range=0-19)	7.6	7.4
Mother's attends church once a week or more	62.2	59.6
Women's status (1994)		
Wife works outside the home	76.4	77.9
Husband turns over all income to wife	25.9	25.2
Women rated as "high status"	43.9	42.1
Marital Relationship (1994)		
Husband beats wife (%)	13.4	11.5
Still married to same man as in 1994	89.7	91.6
Still unmarried, separated, or widowed since 1994	3.1	3.2
Separated, widowed, or newly married since 1994	7.2	5.2
Final decisions made by wife, mean (range=0-10)	4.6	4.5
Final decisions made by husband, mean (range=0-10)	1.1	1.0
Final decisions made jointly (range=0-10)	4.3	4.4
Parenting style as Reported by Adolescents (1998-2000)		
Mother is permissive ¹	78.6	59.9
Mother is neglectful ¹	8.1	9.6
Mother is authoritative ¹	10.4	21.3
Mother is authoritarian ¹	2.9	9.2
Father is permissive ²	68.6	48.5
Father is neglectful ²	12.7	16.3
Father is authoritative ²	11.4	16.5
Father is authoritarian ²	6.8	18.6

Sample size=1,791 mothers and adolescents (933 boys and 858 girls) except where noted

¹ Sample size=1,731 adolescents (901 boys and 830 girls)

² Sample size=1,591 adolescents (826 boys and 765 girls)

All hazards ratios are adjusted for clustering by barangay

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

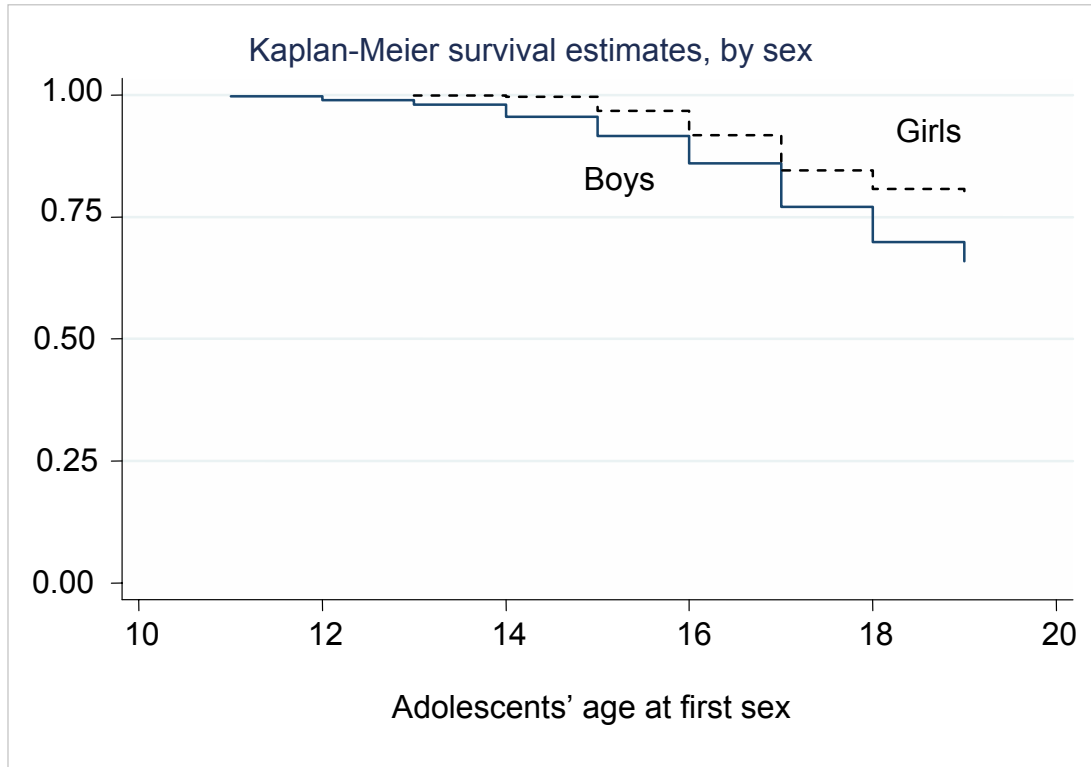


Figure 6.1: Kaplan-Meier survival estimates from birth to age at first sex among boys and girls

Bivariate Associations

The hazard ratio for each variable is presented in Table 6.2. Among the boys' mothers, urban residence and younger age were associated with their sons having first sex at a younger age. Among the marital relationship variables, when either the husband or the wife had final say in more household decisions, their boys were more likely to have had sex by ages 17-19. Conversely, the more household decisions made jointly in 1994, the lower the likelihood that their sons had sexual intercourse. The generally linear pattern of this association among both girls' and boys' parents is illustrated in Figure 6.2.

Being married to the same man by 1998 was associated with sons' later age at first sex, while a change in marital status was associated with younger age at first sex among boys. Mothers' working outside the home and husbands turning over all of their

income to their wives was associated with younger age at first sex but did not reach the $p < 0.05$ level.

Among girls, greater household wealth, greater education, and greater church attendance were associated with their daughters' older age at first sex. The interviewer-rated measure of women's status was significantly associated with delayed first sex among girls. None of the decision making indices were significantly associated with girls' age at first sex, unlike for boys. Among the marital relationship variables, being married to the same man by 1998 is associated with daughters' older age at first sex, while a change in marital status is associated with their younger age at first sex—as was found among the boys (see Table 6.2).

Parenting style, as measured by the adolescents at ages 13 to 15, had no effect on age at first sex by ages 17 to 19 in either boys or girls. Among those for whom data were available, whether the mother or father was permissive, neglectful, authoritarian, or authoritarian did not affect age at first sex among boys or girls. For this reason, they were not entered into the multivariate models.

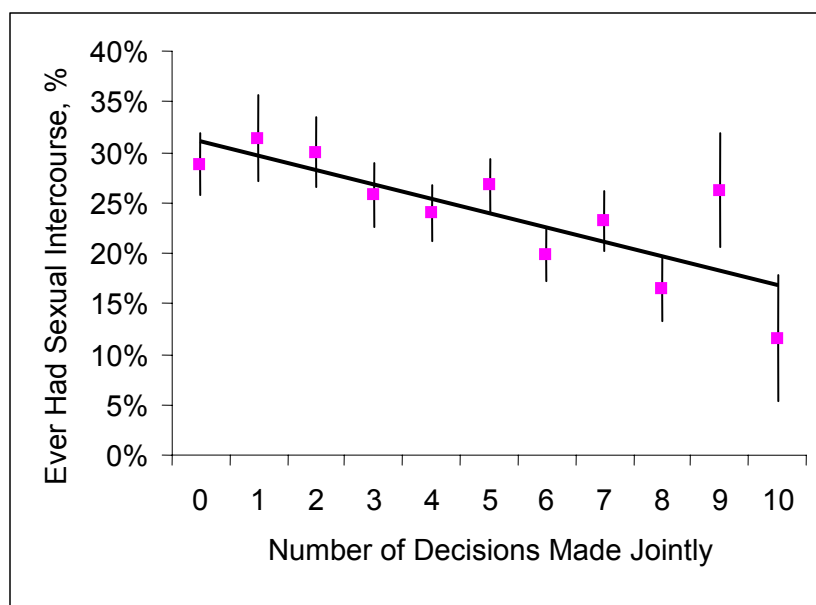


Figure 6.2. Percentage of adolescents who have ever had sex by parent's joint decision making patterns. Boys and girls are combined. Error bars indicate the upper and lower limits of the 95% confidence intervals and the line designates the best fitting linear trend to the points.

Table 6.2 Adolescents' hazard of having sex by 2002 by mothers' characteristics						
Parental Characteristics	Males			Females		
	Hazard Ratio	Confidence Interval		Hazard Ratio	Confidence Interval	
Sociodemographic characteristics (1994)						
Household wealth index	1.04	0.89	1.23	0.74*	0.58	0.95
Urban residence	1.64***	1.26	2.13	0.91	0.60	1.37
Mother's age	0.98	0.96	1.00	0.99	0.96	1.02
Mother's education (years)	1.00	0.97	1.03	0.92***	0.88	0.97
Mother attends church once a week or more	0.96	0.74	1.24	0.69*	0.49	0.96
Women's status (1994)						
Wife works outside the home	1.31	0.99	1.75	0.97	0.68	1.38
Husband turns over all income to wife	1.27	0.98	1.65	0.85	0.61	1.20
Women rated as "high status"	0.90	0.76	1.08	0.56***	0.41	0.77
Marital Relationship (1994)						
Husband beats wife	1.21	0.85	1.74	1.12	0.65	1.94
Still married to same man as in 1994	0.70*	0.52	0.94	0.53**	0.35	0.83
Still unmarried, separated, or widowed since 1994	1.27	0.66	2.47	1.08	0.38	3.04
Separated, widowed, or newly married since 1994	1.48*	1.07	2.03	2.32***	1.56	3.45
Final decisions made by wife	1.05	0.99	1.11	1.00	0.94	1.06
Final decisions made by husband	1.08*	1.00	1.16	1.07	0.98	1.16
Final decisions made jointly	0.92***	0.89	0.96	0.98	0.93	1.03
Parenting style as Reported by Adolescents (1998-2000)						
Mother is permissive ¹	0.88	0.68	1.14	1.08	0.68	1.72
Mother is neglectful ¹	1.09	0.79	1.51	0.89	0.47	1.67
Mother is authoritative ¹	1.20	0.81	1.77	0.85	0.59	1.22
Mother is authoritarian ¹	0.90	0.49	1.66	1.21	0.66	2.21
Father is permissive ²	0.92	0.68	1.26	1.17	0.89	1.55
Father is neglectful ²	1.21	0.88	1.68	0.76	0.45	1.26
Father is authoritative ²	1.02	0.67	1.54	0.69	0.44	1.08
Father is authoritarian ²	0.99	0.55	1.79	1.30	0.94	1.80

Sample size=1,791 mothers and adolescents (933 boys and 858 girls) except where noted

¹ Sample size=1,731 adolescents (901 boys and 830 girls)

² Sample size=1,591 adolescents (826 boys and 765 girls)

All hazards ratios are adjusted for clustering by barangay

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

Multivariate Associations

In the multivariate analysis, living in an urban area was the only socio-demographic factor among boys which was significantly associated with younger age at first sex (HR=1.60, $p<0.001$) (Table 6.3). A gender interaction analysis (based on combined models with both boys and girls) reveals that the difference in the coefficients for urban residence between boys and girls is significantly different (data not shown).

Of the women's status variables having a mother who worked outside the home in 1994 was associated with younger age at first sex among boys (HR= 1.28, $p=0.06$). Having a mom who has separated, widowed, or newly married between 1994 and 1998 also increased risk of having sex at an younger age among boys (HR= 1.46, $p=0.04$). The household decision making variables remained significant predictors of the timing of boys' sexual debut after multivariate adjustment for marital relationship, women's status, and sociodemographic variables.

For each decision in which fathers had final say, as reported by surveyed mothers, age at first sex was significantly younger among boys (HR=1.09, $p=0.02$). The same was found for each decision in which mothers had final say (HR=1.05, $p=0.10$) but this effect was not significant at the $p<0.05$ level. In a separate model in which the number of household decisions made jointly was included in place of the number of decisions made individually, joint decision making was protective against earlier age at first sex (HR=0.94, $p<0.004$).

Among the girls, mother's education was the only sociodemographic variable that was associated with younger age at first sex (HR= 0.95, $p=0.06$) (see Table 6.3). Among the women's status variables, the locally defined measure of women's status was

significantly associated with older age at first sex among girls (HR= 0.64, p=0.023).

Among the marital relationship variables, having a mother who has separated, widowed, or newly married between 1994 and 1998 was associated with a two-fold greater hazard of having sex by ages 17 to 19 (HR=2.35, p<0.001) even after women's status and socio-demographic variables were added to the model. For each decision in which fathers had final say, age at first sex was younger among girls, although this association was not significant at the p<0.05 level (HR= 1.08, p=0.08). A gender interaction analysis based on a model that includes both girls and boys (data not shown) reveals that the coefficients for the locally defined measure of women's status and for husband turning over all of his income to his wife are significantly different between girls and boys.

Table 6.3 Multivariate hazard models predicting risk of having sex by marital relationship, parenting, parental characteristics, and household characteristics, boys and girls						
	Boys (N=933)			Girls (n=858)		
	Hazard Ratio	95% CI		Hazard Ratio	95% CI	
Women's Socio-demographic Characteristics						
Household wealth index	1.09	0.93	1.28	1.04	0.74	1.45
Urban residence	1.60***	1.26	2.03	0.98	0.67	1.45
Mother's age	0.98	0.96	1.00	0.99	0.96	1.01
Mother's education	0.98	0.94	1.02	0.95 †	0.89	1.00
Mothers' church attendance	0.92	0.69	1.23	0.80	0.55	1.18
Women's Status						
Wife works outside the home	1.28 †	0.99	1.67	0.96	0.67	1.39
Husband turns over all income to wife	1.19	0.92	1.54	0.86	0.62	1.18
Women's status (Household, mom, or child well-kept)	0.91	0.71	1.16	0.64*	0.44	0.94
Marital Relationship						
Husband beats wife	0.97	0.67	1.41	1.00	0.59	1.69
Mom still unmarried, separated, or widowed since 1994	1.34	0.66	2.71	1.37	0.47	3.99
Mom separated, widowed, or newly married since 1994	1.46*	1.01	2.11	2.35***	1.48	3.74
Number of Final decisions made by wife (0-10)	1.05 †	0.99	1.10	1.01	0.94	1.08
Number of Final decisions made by husband (0-10)	1.09*	1.01	1.18	1.08 †	0.99	1.17
Number of Final decisions made jointly (0-10) ^a	0.94**	0.90	0.98	0.97	0.91	1.04

All hazards ratios are adjusted for clustering by barangay

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

^a Results of the full model with decision-making entered as a joint index, in place of the individual wife and husband indices. The full model adjusts for all of the other socio-demographic characteristic, women's status, and marital relationship variables (except number of final decisions made by wife and husband).

F. Discussion

The current analysis finds that aspects of parents' marital relationships and women's status have significant long-term effects on adolescent sexual behavior in the Philippines. Specifically, boys whose mothers and fathers make more household decisions alone, whose parents separated, widowed, or newly married in early adolescence, and whose mothers work outside the home are more likely to have sex at a younger age when socio-demographics and other variables are controlled for. Girls whose fathers make more household decisions alone, whose parents separated, widowed, or newly married in early adolescence, and whose mothers have low status are more likely to have sex at a younger age when socio-demographics and other variables are controlled for.

In this study, the two primary measures of the marital relationship, individual parental decision making and change in marital status, were associated with younger age at first sex among both boys and girls. For each decision in which mothers and fathers have final say, as reported by surveyed mothers, age at first sex is significantly younger among boys. The effect of parental household decision making was further corroborated by a strong protective effect among boys when final decisions are made jointly, even after adjusting for other variables. For each decision in which fathers have final say, age at first sex is younger among girls although this relationship did not achieve significance at the $p < 0.05$ level and joint decision making was not significant among girls.

Thus the factors associated with increased risk of having sex at a younger age are different for girls and boys and there are significant gender differences in the determinants of age at first sex. For example, boys whose mothers work outside the

home were more likely to have had sex at a younger age but there was no such effect among girls. In fact, a test for interaction was significant, suggesting that there are gender differences in the effect of mothers working.

The finding that mothers' employment outside the home increased the risk of having sex at an earlier age among boys was consistent with a few other studies that have found that maternal employment increases adolescent risk behavior (Hansson, Oconnor, Jones, & Blocker, 1981). This finding should be taken with caution, however, because the literature is inconsistent on this relationship. More recent studies have found no effect of maternal employment on girls or boys (Aughinbaugh & Gittleman, 2004).

The association between maternal employment and poor adolescent health outcomes has been explained by reduced parental monitoring and supervision (Jacobson & Crockett, 2000). The present study explored the role of parenting styles but it did not help explain the association with age at first sex. Given the differences in setting, and that women, if they had their choice, would not work outside the home, this variable may be a marker for something other than parental monitoring or number of hours with the child.

Changes in marital status negatively affected both boys and girls. This association may be explained by a reduction in stability in the household; children may feel less secure observing drastic changes in family structure or feeling the emotional loss of a parent. The majority of the marital status changes were due to separation which can be a difficult change for an adolescent, especially along with the other changes that come in the transition to adulthood. It could also be caused by parental conflict which preceded the separation, changes in family income, and the observance of mothers dating (Cherlin, 1998; Davis & Friel, 2001; Thornton & Camburn, 1987).

In the current study, girls are influenced by their mothers' status which is protective against early sexual activity. Girls from families in which mothers have high status were found to delay their first sexual experience and this effect is not present among boys. This may be explained by an increased ability for such girls to refuse unwanted sex, due to increased self esteem or sense of value. Other research has found that girls who have power (defined as confidence with members of the opposite sex, popularity, opposite-sex friends, and egalitarian gender role attitudes) are better able to avoid sexual behaviors (including participation in unwanted sex and the extent of intimate sexual behaviors) because they are less dependent and feel less discomfort with physical appearance, need for self-disclosure and closeness, need for physical gratification in sex, or need for emotional gratification in sex (Kalof, 1995).

The longitudinal nature of this research provides a rare opportunity to look at the long-term effects of parental influence on adolescent sexual activity. It is surprising that exposures as early as age 9 to 11 (the 1994 mother's survey) could remain significant in explaining health outcomes at ages 17 to 19. The longitudinal effect of parental influences in early adolescence may operate in two ways. Either the exposures of parental conflict and women's status persist over time or the effect of exposures and experiences in early adolescence have a long lasting impact.

Another strength of the study is that it is representative of all adolescents in Cebu because there were no selection criteria when their pregnant mothers were first enrolled in 1983-84. Many other studies of sexual behavior among adolescents have been done in schools, which exclude young people who are out-of-school, who stay at home or go to work, and may be more likely to engage in high-risk behaviors. Other than losses to

follow up, this study includes all children born in one area at one point in town. Therefore, these cohort data should be generalizable to other major urban areas in the Philippines.

The current study has a couple of methodological limitations. First, the primary outcome of interest, age at first sex, comes from adolescent self-reports, and may be subject to recall bias or social desirability bias. Due to the strong conservative culture in the Philippines, the self-reported data may not reflect true behavior. Many adolescents, particularly females, may be especially uncomfortable discussing their sexual behavior and, thus, their reports may be inaccurate. Young men, on the other hand, may over report their sexual experiences, to give the impression that they are conforming to societal expectations. (Gregson, Zhuwau, Ndlovu, & Nyamukapa, 2002; Singh, Wulf, Samara et al., 2000)

Because the adolescents have been involved in this longitudinal survey for almost two decades, the interviewers have established strong rapport with the participants. While the respondents may be embarrassed to report their sexual behaviors to someone they know well, the interviewers have been trained to reassure the adolescents repeatedly over the years that their responses will be kept confidential. Further, the data in the present study can be externally validated with the results from other Filipino adolescents. When compared with the results from nationally representative data on adolescents in the Philippines, the results from the current study appear valid. Demographic and Health Surveys data from 2003 show that 28% of boys and 21% of girls have had sex by age 19 (National Statistics Office (Philippines) & ORC Macro, 2004). The current data falls

well within these ranges with 31% of boys and 20% of girls ages 17-19 reporting having had sex.

The findings of this research have implications for parents and adolescent health programs. Parents should be aware that they play an important role establishing a stable home environment. They may not be aware of how influential their behaviors are at early adolescence and that these effects remain long into adolescence. Not only are connectedness, closeness and other aspects of the parent-adolescent relationship an important influence, but parental relationships with each other, can also affect children's health outcomes. A family atmosphere that values women's status and fosters gender equity may lead to delayed first intercourse among girls. While a change in marital status is sometimes inevitable, creating a cooperative home environment in early adolescence, with joint decision making between parents and high status of women, may lead to delayed first sex years later.

Programs that aim to prepare adolescents for sexual activity must acknowledge the strong influence of parents and family life environments. Programs will encounter children from a variety of home situations and they can be sensitive to the unique needs of each adolescent, given their individual situations at home.

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Chapter 7: Conclusion

A. Summary

This study examined the pattern of precoital sexual behaviors and the peer and parental related determinants of age at first sex in Cebu, Philippines. The aims for the current research are listed below, along with a summary of the findings for each.

Aim 1: To explore the pre-coital sexual experiences of Filipino adolescents, including the first crush, first date, first relationship, holding hands, kissing, petting, and first sexual intercourse.

This first part of the analysis found several gender differences in the patterns of precoital behavior. Girls experience emotional relationships at earlier ages than boys do but boys progress through them at a faster pace than girls ($p \leq 0.001$). After adolescents begin courting, romantic relationships, and dating, there are several years before they have sex and this delay is longer for girls than boys. Boys engage in physical behaviors and sex at earlier ages than girls. Fast pace of emotional relationships is a strong predictor of younger age at first sex among girls ($HR=1.48, p=0.009$), but not among boys. Boys who have few emotional relationships are less likely to have sex by ages 17-19. ($HR=0.12, p \leq 0.001$).

Aim 2: To explore how perceptions of friends' behaviors influence age at first sex in Cebu, Philippines.

This analysis found that perceptions of friend's behaviors affect the behaviors of both boys and girls several years later. Boys and girls who perceived that their friends had ever had boyfriends/girlfriends, dated, held hands, kissed, petted or had sex at ages

14 to 16 were significantly more likely to be engaging in that behavior by ages 17 to 19. For each additional behavior an adolescent perceived his or her friends to be engaging in, the hazard of having sex at an earlier age increased by 1.15 ($p=0.02$) among boys and by 1.19 ($p=0.002$) for girls even after adjusting for mother's disapproval of premarital sex and other factors. Mother's disapproval was strongly associated with having sex at an earlier age among girls but not boys even after adjusting for other factors, including peer influence ($HR=0.55$, $p=0.003$).

Aim 3: To explore the effect of marital relationships and women's status among parents on their adolescent children's age at first sex.

After multivariate adjustment, the analysis found that for each decision in which fathers have final say, as reported by surveyed mothers, age at first sex is significantly younger among boys ($HR=1.09$, $p=0.02$). Having a mom whose marital status changed in early adolescence was also associated with a younger age at first sex for both boys ($HR=1.46$, $p=0.04$) and girls ($HR=2.35$, $p<0.001$). Girls who had mothers who scored highly on a locally defined rating of women's status were less likely to have sex at a younger age ($HR=0.64$, $p=0.02$). These associations could not be explained by parenting style. The influences of marital relationships and women's status on age at first sex were different for male and female adolescents. A gender interaction analysis based on a model that includes both girls and boys revealed that the hazards ratios for living in an urban area, the locally defined measure of women's status, and for husband turning over all of his income to his wife are significantly different between girls and boys.

B. Limitations

The present study may have the following limitations:

1. Attrition

One of the primary concerns of this and most longitudinal studies is the loss of subjects over time. If the attrition is selective on particular characteristics, this will cause a systematic bias and threaten the validity of the findings (Epstein & Botvin, 2000). The 1998-2000 survey includes 2,117 adolescents. By 2002, 101 of these adolescents were lost to follow up mainly due to out migration. These adolescents were unreachable, and therefore may be more likely to have had sex. To check for this bias, those respondents who were lost to follow up were assessed for whether they were significantly different from the remaining sample, based on socio-demographic data available before they had left the sample. A comparison of sex, wealth, highest grade, church attendance and emotional behaviors found no significant differences between those who migrated out, although these missing adolescents could have . In the 2002 survey, 35 index children (children of the mothers in the original sample) who were not captured in the 1998-2000 survey, were located and added back to the sample. Thus, the 2002 survey includes a total of 2,050 adolescents.

2. Response bias

Due to the strong conservative culture in the Philippines, the self-reported data may not reflect true behavior. This refers to the internal validity of the data, or how well an instrument measures what it is supposed to. Many adolescents, particularly females,

may be especially uncomfortable discussing their sexual behavior and, thus, their reports may be inaccurate. Young men, on the other hand, are known to over report their sexual experiences, to give the impression that they are conforming to societal norms (Singh, Wulf, Samara, & Cuca, 2000). This results in responses that aim to please the interviewer or responses that are socially desirable (Gregson, Zhuwau, Ndlovu, & Nyamukapa, 2002). The effect of the sex of interviewers may also affect responses due embarrassment about having or not having premarital sex (Becker, Feyisetan, & Makinwa-Adebusoye, 1995).

Some researchers have found that while a response bias may be introduced in large scale surveys on sexual behavior, participation is high as long as researchers use such preliminary precautions as involving a community liaison, maintaining confidentiality, and interviewing tactfully (Dare & Cleland, 1994). Because the adolescent respondents in the current study have been involved in this longitudinal survey for almost two decades, the interviewers have established strong rapport with the participants. While they may be embarrassed to report their sexual behaviors to someone they know well, the interviewers have been trained to reassure the adolescents repeatedly over the years that their responses will be kept anonymous.

The findings in the present study can be externally validated with the results from other studies of Filipino adolescents. National data collected in 2002 found that much lower a much lower proportion—26% of boys and 9% of girls ages 17 to 19—reporting ever having had sex (Commission on Population & United Nations Population Fund, 2003). DHS data from 2003 reports that 28% of boys and 21% of girls have had sex by age 19 (National Statistics Office (Philippines) & ORC Macro, 2004). An unpublished

survey using a self-administered questionnaire among 1,196 students ages 15-24 in Dumaguete City in the Philippines found that 50% of boys and 10% of girls were sexually active (Brown, Jejeebhoy, Shah, & Yount, 2001; Cadelina, 1998). The current data falls well within these ranges with 31% of boys and 20% of girls ages 17-19 having had sex. However, given the cultural norms against premarital sex, these studies may all provide underestimates of true levels of sexual activity.

3. Recall bias

Many of the outcomes in this study involve adolescents recalling when they engaged in many different behaviors. These responses are subject to recall bias, including memory lapses, duration heaping, and omission. Duration heaping is the phenomenon that certain dates, ages or durations are overrepresented because they are more significant or memorable ages. Recall bias was less likely to be a concern because the instrument was implemented within, at most, just a few years of the events. In addition, with a longitudinal design, multiple time points are available to document the events.

C. Strengths

The present study benefits from the following strengths:

1. Longitudinal data

Probably the greatest strength of this study is that adolescents can be observed over multiple points in time, allowing the ability to make causal inferences. The current study observed exposures when the adolescent was as young as 9 to 11 years old and

outcomes when the adolescents were ages 17 to 19. Additionally, few studies are able to examine intergenerational longitudinal data that can be used to observe and model relationships between parents and their children over time. Because such data can establish that exposures preceded outcomes, there is more support for a causal relationship among variables.

2. Ability to assess reliability

The data allowed for assessing reliability for some questions by comparing responses at different points in time. Responses were checked to ensure that they were consistent.

3. Generalizability

The adolescent sample is the cohort of those born in a single year in Metro Cebu. While the data represent only one age group and results of these adolescents may not be generalized to those born several years later, or those born several years earlier, they do include a wide section of society's adolescents. Many other studies of sexual behavior among adolescents have been done in schools, and they exclude young people who are out-of-school, who stay at home, or go to work. These adolescents may be disproportionately more likely to engage in high-risk behaviors. This study is representative of all adolescents in Metro Cebu since all women in the randomly selected barangays who were pregnant were eligible to participate in the 1983-84 CLHNS. Losses to follow up remain an issue, but, in general, the results of the study are also probably applicable to other major urban areas in the Philippines.

4. Intergenerational data

Studies using intergenerational data are rare. Few studies have been able to link mothers' data with outcomes in their children, and even fewer are both intergenerational and longitudinal. The CLHNS contains data from a cohort of women and their children over a couple of decades, thus providing a unique opportunity to observe associations between parental factors and long-term outcomes in their children. This allows for linking parental factors with an outcome in that particular parent's child. Such linked data provides more support for a causal relationship.

5. Data quality

The CLHNS is a well established, efficiently executed, and highly organized operation in the Philippines (Adair & Popkin, 2001). The interviewers have been working among the population for many years as interviewers and have accumulated substantial experience in interviewing techniques. They have also become adept at data cleaning and checking for errors. The interviewers sometimes have gone back to the household if the data have substantial inconsistencies.

D. Recommendations for Future Research

As explored in Chapter 2, there are many cultural barriers to accepting that adolescents have premarital sex, and this belief makes it difficult to ensure that they get information and the means to practice safer sexual behavior. The Philippines is not the only country with the misperception that adolescents do not have premarital sex. Further

research exploring the context of adolescent sexual activity in developing countries is needed, particularly in more conservative cultures. More research exploring the circumstances in which girls and boys have their first sexual encounter will help programs in developing countries develop more tailored interventions.

Additionally, a better understanding of how adolescents conceptualize and process romantic relationships. What are they? What do they mean to adolescents? How are they formed? Qualitative research would be most appropriate to investigate these questions.

Also of interest is the role of parenting styles and other parental factors on adolescent sexual activity. Contrary to a wide body of literature from the US, parenting styles did not influence age at first sex in the Philippines, as shown in Chapter 5. Further research could explore alternative measures of parenting styles, perhaps that would be more culturally appropriate in the Philippines. Additional studies are also needed on gender dynamics within the household and how they may affect adolescent sexual behavior. As explained in Chapter 6, daughters from families in which the mother has high status were less likely to have sex at an earlier age. Further studies could investigate the exact mechanisms of action.

E. Implications

The current research finds that girls and boys in the Philippines are on very different trajectories. Programs should understand the unique needs of males and females and tailor interventions that address them in different ways. While both boys and girls experience a pause or delay in their progression toward first sex, boys initiate earlier than

girls, and often with someone outside an emotional relationship. Parents can ensure that boys are prepared at earlier ages and girls who advance quickly through different emotional relationships are equipped with the information and access to services to enable them to have safer sex. The pause or delay that both boys and girls experience before sex provides an ideal opportunity to ensure that adolescents are making informed choices about sexual behavior.

Boys and girls are also influenced by drastically different factors. The current research finds that all adolescents are strongly influenced by their peers, parents and home environments, but boys and girls are affected by different aspects of these domains. For example, in the third paper, boys were more negatively influenced by their mothers working than girls were. Therefore, interventions must account for the different ways boys and girls will process life circumstances, and be prepared to respond to boys and girls' different needs.

The finding that perceptions of friends' behaviors have a strong influence on adolescents' behavior provides support for asking adolescents at early ages about what emotional relationships and physical behaviors they think their friends are engaging in. Information about peers may also reflect information about the adolescents themselves that they are unwilling to reveal. This information can help better tailor prevention messages. Programs can intervene with such adolescents early and ensure that they are able to make responsible and informed decisions about their sexuality.

The findings that marital relationships of parents have a strong effect on their children's sexual behavior have specific implications for parents and adolescent health programs. Parents should be aware that they play an important role establishing a stable

home environment. They may not be aware of how influential their behaviors are at early adolescence and that these effects remain long into adolescence. Not only are connectedness, closeness and other aspects of the parent-adolescent relationship an important influence, but parental relationships with each other, can also affect children's health outcomes. While a change in marital status is sometimes inevitable, creating a cooperative home environment in early adolescence, with joint decision making between parents and high status of women, may lead to delayed first sex years later. Programs that aim to prepare adolescents for sexual activity must acknowledge the strong influence of parents and family life environments. Programs will encounter children from a variety of home situations and they can be sensitive to the unique needs of each adolescent, given their individual situations at home.

This research is grounded in an ecological systems framework, which acknowledges that adolescents are affected by a variety of factors, which themselves influence one another and can even work in synergy to increase an effect on the individual. This framework lends support for a multi-pronged approach to ensure that adolescents are prepared for sexual activity. No individual intervention has been dramatically significant in changing adolescent behavior. A single strategy cannot reach all young people. Some adolescents do not go to school, some do not live with parents, some do not participate in sports, some will not be working. A successful strategy will venture to reach young people in a variety of places (Kiragu, 2001; National Research Council, 2005). Multi-component community-based strategies appear to be more promising than single-component strategies. Schools, health services, youth programs,

media, friends, families, church, NGOs, barangay level institutions all have a part to play in helping young people make informed decisions about sexual behavior.

Higher level systems, including the socio-cultural, economic, and political systems must be supportive of sexual and reproductive health programs for adolescents. These higher order systems are vital to creating an enabling environment in which adolescents can make health and informed decisions about reproductive health and sexual behavior.

Currently several governmental and nongovernmental initiatives in the Philippines address the reproductive health needs of adolescents (Aquino, D'Agnes, Castro, Borromeo, & Schmidt, 2003; Silayan-Go, 1998; UNESCO Asia and Pacific Regional Bureau for Education, 2003; Varga & Zosa-Feranil, 2003); unfortunately, they face many challenges. The largest is addressing the lack of high-level political support for contraception in general and even more so for family planning information and service delivery to adolescents (Human Rights Watch, 2004). Cultural stigma against unmarried youth using contraceptives, negative attitudes among health care providers, pressure from the Church, and lack of adequate supplies at the local health system level all contribute barriers to adolescent sexual and reproductive health (Varga & Zosa-Feranil, 2003).

This research demonstrates that indeed adolescents in the Philippines are on the course of increased rates of sexual behavior and have immediate reproductive health needs, however. With these changes, adolescents need support throughout this period of transition. In many societies, schools, parents, and other institutions are silent on issues of sexuality during a time when adolescents need information and guidance most. Recognizing this period and understanding the way adolescents make decisions about

sexual behavior will inform the design of more appropriate reproductive health interventions for their realities.

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Appendix A

Adolescent Questionnaire 2002: Sexual Behavior Questions

F4.26 Have you ever had a crush on a girl/boy (opposite sex of IC)?

- 0 - No
- 1 - Yes
- 8 - NR/DK

F4.27 Have you ever had a crush on a boy/girl (same sex as IC)?

- 0 - No
- 1 - Yes
- 8 - NR/DK

IF ANSWER IN F4.26 OR F4.27 IS "1" (YES), ASK:

@F4.28 How old were you when you had your first crush?

AGE: _____

- 9 - Did not have a crush

F4.29 What do you understand by a crush?

VERBATIM: _____

F4.30 Have you ever gone on a date?

- 0 - No
- 1 - Yes
- 3 - Unsure

F4.31 What do you understand by a date?

VERBATIM: _____

IF ANSWER IN F4.30 IS "1" (YES), ASK:

@F4.32 At what age did you have your first date?

AGE: _____

- 9 - NA (Never gone on a date) GO TO F4.35

F4.33 Was your first date:

- 1- As a group
- 2- You and your date with a chaperone

- 3 - You and your date without a chaperone
- 8 - NR
- 9 - NA (Never gone on a date)

F4.34 What did you do on your first date?

VERBATIM: _____

- 8 - NR
- 9 - NA (Never gone on a date)

F4.35 Have you ever courted a girl/boy (opposite sex as IC)?

- 0 - No
- 1 - Yes
- 8 - NR/DK

F4.36 Have you ever courted a boy/girl (same sex as IC)?

- 0 - No
- 1 - Yes
- 8 - NR/DK

IF ANSWER IN F4.35 OR F4.36 IS "1" (YES), ASK:

@F4.37 At what age did your first court someone?

AGE: _____

- 9 - NA (Did not court someone)

F4.38 Have you ever been courted by a girl/boy (opposite sex as IC)?

- 0 - No
- 1 - Yes
- 8 - NR/DK

F4.39 Have you ever been courted by a boy/girl (same sex as IC)?

- 0 - No
- 1 - Yes
- 8 - NR/DK

IF ANSWER IN F4.38 OR F4.39 IS "1" (YES), ASK:

@F4.40 At what age were you first courted by someone?

AGE: _____

- 9 - NA (Not courted by anyone)

F4.41 What do you understand by courtship?

VERBATIM: _____

-8 - NR/DK

IF IC IS CURRENTLY MARRIED OR COHABITING, DO NOT ASK QUESTIONS F4.42, F4.45 AND

F4.46; JUST RECORD A "YES" RESPONSE TO THESE QUESTIONS

@F4.42 Have you ever been in a romantic relationship?

0 - No GO TO F4.44
1 - Yes CONTINUE
3 - Unsure GO TO F4.44

@F4.43 At what age did you have your first romantic relationship?

AGE: _____

-9 - NA

F4.44 Have you had a romantic relationship with someone of the same sex?

0 - No
1 - Yes
-8 - NR/DK

F4.45 Please allow me to ask you questions about sexual experiences. Regardless of whether you have had a romantic relationship or not; with the opposite sex or with the same sex. Tell me if you have ever done the following:

a)	Holding hands	0 -	No	1 -	Yes	-8 -	NR
b)	Kissing	0 -	No	1 -	Yes	-8 -	NR
c)	Petting	0 -	No	1 -	Yes	-8 -	NR

@F4.46 Have you ever had sexual intercourse?

0 - No GO TO BLOCK G
1 - Yes CONTINUE
-8 - NR GO TO BLOCK G

@F4.47 At what age did you first have sexual intercourse?

AGE: _____

-9 - NA

F4.48 Where did the first sexual intercourse take place?

WRITE PLACE MENTIONED BY IC: _____

-9 - NA

@F4.49 Have you ever used family planning?

0 - No CONTINUE
1 - Yes GO TO F4.51
-8 - NR

F4.50 Why have you not used family planning?

VERBATIM: _____

-9 - NA

GO TO F4.55

@F4.51 What family planning methods have you used?

NAME ALL METHODS EVER USED: _____

-9 - NA

F4.52 Where do/did you get your supply or services for family planning?

SOURCES: _____

-9 - NA

F4.53 What method are you currently using?

0 - None GO TO F4.54

METHOD(S): _____

-9 - NA

GO TO F4.55

F4.54 Why did you stop using family planning?

0 - Currently pregnant

VERBATIM: _____

-9 - NA

Appendix B

Adolescent Questionnaire 2002: Peer Influence Questions

L22 How many close girl friends do you have?

ENTER NUMBER IN BOXES

0 - None GO TO L24
:
10 - Ten CONTINUE

L23 Are they:

1 - Younger than you
2 - Your age
3 - Older than you
-8 - NR/DK
-9 - NA

L24 How many close boy friends do you have?

ENTER NUMBER IN BOXES

0 - None IF L22 IS ALSO 0, GO TO L30; IF NOT, GO TO L26
:
10 - Ten CONTINUE

L25 Are they:

1 - Younger than you
2 - Your age
3 - Older than you
-8 - NR/DK
-9 - NA

L26 How often do you usually see your close friends in a week?

VERBATIM: _____

-8 - NR/DK
-9 - NA

L27 Do any of your close friends (both sexes) have boyfriends/girlfriends/spouses?

0 - No
1 - Yes
-8 - NR/DK
-9 - NA

L28	Do any of your close friends			
	smoke?	0 - No	1 - Yes	-8 -NR/DK
	drink alcoholic beverages?	0 - No	1- Yes	-8 -NR/DK
	take drugs?	0 - No	1- Yes	-8 -NR/DK
	-9 - NA			
L29	Do you think they have done the following?			
	1 - Dating	0 - No	1 - Yes	-8 - NR/DK
	2 - Holding hands	0 - No	1 - Yes	-8 - NR/DK
	3 - Kissing	0 - No	1 - Yes	-8 - NR/DK
	4 - Have sex	0 - No	1 - Yes	-8 - NR/DK
	-9 - NA			

Appendix C

Mother's Questionnaire 1994: Parental Relationship and Women's Status Questions

CEBU LONGITUDINAL HEALTH AND NUTRITION STUDY

1994 Follow-up Survey

BLOCK T: HOUSEHOLD DECISION MAKING

ASK OF ALL MOTHERS!

I would like to know how decisions are made in your household. I will name some decisions that you have to make and please tell me if:

(a) There is someone you consult with when you decide on this matter?

If yes, who do you consult? USE CODES BELOW!

(b) Whose will prevails on this matter?

(c) What do you do when you are against such a decision?

(VERBATIM)

USE THE CODES BELOW TO ANSWER (a) AND (b) FOR THE SITUATIONS DESCRIBED IN THE TABLE BELOW

- | | |
|----------------------|---|
| 0 - no one | 7 - mother-in-law |
| 1 - woman herself | 8 - father-in-law |
| 2 - spouse | 9 - other adult female |
| 3 - woman and spouse | 10 - other adult male |
| 4 - son or daughter | -8 - NR |
| 5 - mother | -9 - NA e.g. cannot afford item or no children in household |
| 6 - father | |

Situation	Who do you consult? (a)		Who's will prevails? (b)		What do you do if you are against the decision? (c)	
Buying your shoes?	T1		T2		T3	
Buying clothes for the children?	T4		T5		T6	
Bringing the child to the doctor?	T7		T8		T9	

Situation	Who do you consult? (a)		Who's will prevail? (b)		What do you do if you are against the decision? (c)	
Buying major appliances, e.g. TV?	T10		T11		T12	
Buying or selling land?	T13		T14		T15	
Where to send the children for schooling?	T16		T17		T18	
If you were to work outside the home?	T19		T20		T21	
If you were to travel outside Cebu?	T22		T23		T24	
What gift to give to relatives?	T25		T26		T27	
Hiring of household help?	T28		T29		T30	
Whether to use family planning or not?	T31		T32		T33	
What FP method to use?	T34		T35		T36	

T37 When your husband gets/got angry, does/did he physically hurt you?

1 - Yes CONTINUE -9 < Respondent is single
 0 - No GO TO T40 GO TO T42
 -8 - NR GO TO T40

INTERVIEWER: ASSESS THE APPEARANCE OF THE HOUSE, THE CHILDREN,
AND THE RESPONDENT (not too obviously!!)

	WELL KEPT	NOT WELL KEPT
T44	House/Environs	
T45	Children	
T46	Mother	

T51 If your husband is working, does he give you the money he earns?

- 1 - Yes, all of it
- 2 - Yes, part of it
- 0 - No, nothing
- 8 - NR
- 9 - NA Respondent is single or Husband never worked

E1 Does _____ (LISTED IN E-1) currently do any work for pay?

ANY WORK IS DEFINED AS ANY GAINFUL EMPLOYMENT WHICH INCLUDES
ACTIVITY FOR WHICH ONE RECEIVES REMUNERATION EITHER IN CASH
OR IN KIND.

- 1 Yes GO TO E3
- 0 No CONTINUE
- 8 NR CONTINUE

Curriculum Vitae

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Universidad Mayor de San Simon Cochabamba, Bolivia
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WORK EXPERIENCE

Center for Communication Programs, INFO Project Baltimore, MD
Associate Editor, Editorial Division 2005 – Present

- Supervise and manage INFO Project researchers
- Review drafts of *Population Reports* issues and other INFO Project publications written by other staff members and consultant writers to ensure technical accuracy and adherence to INFO quality standards
- Manage Population Reports activities, including planning resource allocation, scheduling, and coordination of Population Reports workflow and publication

Research Writer, Population Reports 1999 – 2005

- Identify demographic, epidemiologic, scientific and programmatic issues related to *Population Reports* topics
- Maintain current knowledge and review studies on contraception, STIs and other reproductive health topics
- Write analytic reports and other publications on demographic and global health issues
- Mentor research analysts and help them develop analytic skills
- Assisted in writing the winning proposal to carry out \$33 million, 5-year health information project for USAID

Research Analyst, Population Reports 1998 – 1999

- Compiled survey findings, developed graphical presentations of data, and prepared bibliographies
- Performed literature searches and prepared short pieces for *Population Reports*
- Monitored relevant news related to contraception and other reproductive health topics

- New York State Department of Health, Family Health Division** New York, NY
Graduate Research Assistant for Study on Community Based Organization 1997 – 1998
- Developed a survey to assess the organizational structure for a sample of 100 service agencies in New York City
 - Conducted chart audits of 100 clients to assess case management methodologies for 5 agencies
 - Analyzed data using SPSS, produced a report and presented results to Department of Health staff
- Columbia-Presbyterian Family Planning Clinic** New York, NY
Reproductive Health Educator and Counselor 1996 – 1997
- Counseled young men in an inner city clinic on reproductive health as well as general health
 - Prepared slides and other visual aids on male and female anatomy, birth control methods and STIs
 - Conducted hour long presentations on reproductive health issues for young adults in the clinic waiting room
- Foundation for Humanization** Bombay, India
Project Assistant 1995 – 1996
- Investigated and wrote on social activism for *Humanscape Magazine*, a publication with a circulation of over 5,000 readers
 - Designed and implemented a survey for voluntary organizations to assess networking needs
 - Verified and updated details for over 400 organizations in database of voluntary Indian organizations

SKILLS

Languages: Fluent in Spanish, Conversant in Gujarati and Hindi
Software Packages: WordPerfect, MS Word, PowerPoint, Excel, EndNote, GroupWise
Databases: POPLINE, Measure-DHS StatCompiler, AGI TableMaker
Analysis Software: SPSS, STATA, Excel

MEMBERSHIPS AND ASSOCIATIONS

South Asian Public Health Association (SAPHA) National Organization
Board Member 1999 – 2004
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Volunteer 1997 – 1998

PRESENTATIONS

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