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FAMILY BACKGROUND AND PERSONAL CHARACTERISTICS
AS CORRELATES OF SEXUAL INTERCOURSE
EXPERIENCE AMONG ADOLESCENT FEMALES

by

C. Raymond Bingham

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Human Development

DEDICATION

I dedicate this research to the memory of Boyd E. Smith, a gentleman and scholar whose scientific zeal, love of learning, and life-long conquest of knowledge remain my continual inspiration. May our love for him forever linger in our hearts.

C. Raymond Bingham

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I would like to thank the funding sources and personnel in the Data Archive for Adolescent Pregnancy and Pregnancy Prevention for providing the data used in this research. Thanks also to Melvin Zelnik and John F. Kantner for initially collecting the data, and then making it available for public use.

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To my wife, Rose Marie Bingham, and children, Joshua Raymond and Anthony Boyd, I give my continual love and thanks for the faith and support they've freely given.

Finally, I give my love and thanks to my parents, Clifford H. and Doris L. P. Bingham for the love they have given me throughout all the years of my life, for their encouragement and their interest in my scholastic

endeavors, and for their excellent examples as morally developed individuals.

C. Raymond Bingham

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ABSTRACT

Family Background and Personal Characteristics
as Correlates of Sexual Intercourse
Experience Among Adolescent Females

by

C. Raymond Bingham, Master of Science
Utah State University, 1988

Co-Major Professors: Dr. Gerald R. Adams
Dr. Brent C. Miller
Department: Family and Human Development

A sub-sample of 814 nonvirgin, adolescent females was drawn from the 1979 U.S. National Survey of Young Women in order to study the correlates of age at first sexual intercourse. This sample was analyzed using a conceptual model developed from past research, as well as some intuitively interesting associations meriting investigation.

Multiple regression procedures were used in analysis of variables by block. In the block analysis several variables were found to predict age at first sexual intercourse. These variables included all the control variables (respondent's age, race, religion, and age at menarche), household income, ideal age for first

marriage, ideal age for first birth, and enjoyment of dangerous activities.

The control variables were found to account for a major portion of the variance in the model. Of the controls, chronological age and age at menarche were highly significant across all the models tested. The significant independent variables in the model were total household income, ideal age for marriage and ideal age at first birth, however, these three variables accounted for a small proportion of the total variance in the model, net of controls.

(81 pages)

CHAPTER I
INTRODUCTION

Adolescents are experiencing sexual intercourse at earlier ages and with greater frequency now than in years past. Dreyer (1982) reported that the increase in adolescent sexual activity began as much as fifty years ago. More recently, during the decade from 1970 to 1980 the occurrence of premarital coitus increased from 21 to 31 percent for Whites, and from 51 to 63 percent for Blacks between the ages of 15 and 19 (Clayton & Bokemeier, 1980). Looking more specifically at young women, Chilman (1980) found that fewer are stopping with heavy petting to orgasm, and tend, instead, to move on to intercourse. She attributes some of this change to more liberal sexual attitudes and to the increased availability of effective contraceptives. In the last thirty years society's attitudes toward sexuality have changed to include an increased acceptance of masturbation, homosexuality, premarital sex, and sex education (Wagner, 1980). Hofferth, Kahn, and Baldwin (1987) found no indication that the proportion of sexually active white teens had decreased as of 1982. However, the rate of increase in sexual activity was apparently slowing, suggesting a possible leveling off and stabilization in adolescent sexual activity. In

addition, it was found that greater proportions of young adolescents are engaging in sexual intercourse, however, it is still too early to predict the effect this will have on future trends in adolescent sexual activity.

The consequences of increased sexual activity among adolescents create reason for concern. Rice (1978) points out that "along with increased sexual promiscuity has come a rise in venereal disease, illegitimacy, therapeutic abortions and in the number of unwed mothers" (p. 365). Chilman (1980) states, "The rate of gonorrhea, but not syphilis, has risen among teenagers in the past 20 years or so, having tripled since 1956" (p. 145). It is estimated by the Center for Disease Control that there are in excess of 2.6 million cases of gonorrhea each year, and the rate is rising faster for women than for men. Women ages 20-24 are showing the highest rates. Fifteen- to 19-year-old girls follow close behind, with 12.16 cases per 1000 teenage girls in 1975 (Chilman, 1980).

For some adolescents, having sexual intercourse is a statement of personal independence and autonomy. Hence, it is not surprising that early adolescent sexual activity often occurs together with other behaviors that are commonly viewed as experimental, acting-out, or self assertive conduct. A study by Jessor and Jessor (1974) indicates that among nonvirgin adolescent males 61

percent use marijuana and 96 percent use alcohol. Similar results were found among nonvirgin adolescent females, 67 percent of whom used marijuana and 89 percent used alcohol. Adolescent sexual intercourse also correlates with delinquent behaviors such as shoplifting, car theft, vandalism, assault and reckless driving. (Verner & Stewart, 1974).

There is also concern for the poverty many young, unwed mothers experience, for the effects upon the children of having young or single parents, and the possible complications involving the young mother's physical health, delivery, and psychological well being (Hayes, 1987).

Many recent studies tried to identify factors in the environment of adolescents that correlate with premarital sexual intercourse, especially at an early age (e.g. prior to graduating from high school). These studies have been conducted so that parents, physicians, clinicians (e.g., psychologists, marriage and family therapists and social workers) and policy makers will have a strong research base to rely upon in making decisions regarding policies, practices, and education of youth. Hopkins (1977) put it well when he said, "If sexual intercourse is a behavioral index of important psychological events in the minds of many adolescents,

then premarital intercourse is an act worthy of close study by behavioral scientists" (p. 67).

This study focuses on further identifying factors in the nonvirgin's environment that are significantly associated with initiating sexual activity at an early age. Of special interest in this study are parent's marital status and education, household income, goal setting in the area of education and planning for future marriage and family rearing; social skills involving risk-taking and other's influence on adolescents' behavioral outcomes, religiosity, religious affiliation, age at menarche and tobacco smoking behavior.

Age at first sexual intercourse is used as the dependent variable. This allows identification of factors that are associated with an early transition to nonvirginity, but not with initiation at a later age.

The study at hand utilizes a nationally representative sample involving 1717 subjects including 814 single nonvirgin females between the ages of 15 and 19. The size of this sample allows generalization to a broad population, and gives this study advantages over other studies similar in purpose and design. Analyzing these existing data in the present study requires some assumptions about validity and reliability. In addition, the generalizability of this study may be decreased because of the time lapse between 1979, when

the data were collected, and the present. However, these concerns are compensated for by the sample size, as well as the breadth and diversity of the population it represents. In addition, basic factors that influence early adolescent sexual activity may remain constant over time, making the results of this study as applicable now as in 1979.

The factors relating to virginity status that have just been reviewed show two dimensions of analytical importance. The first dimension is distance. This dimension is evident in the apparent distal to proximal orientation of the factors.

It can also be assumed that the factors affecting virginity status have a temporal dimension. This dimension can be either sequential or simultaneous in structure. As a result, analysis of these factors is equally feasible with either a sequential, longitudinal model, or with a model analyzing the effects of all factors at a concurrent point in time. In this study, where correlational research is involved, a cause-effect model is not feasible, leaving concurrent analysis as the best, if not only alternative.

For the purposes of this study, the factors being analyzed are divided along both the temporal and distance dimensions. In terms of distance from the dependent variable, the independent variables were

analyzed in order from most distal to most proximal. Proceeding in order from most distal to most proximal, the variable blocks of interest for this study include socioeconomic variables, social situation variables, and personal variables, which incorporate personal values and behavior.

Since this is a correlational study, the analysis had to be done in a concurrent time dimension. In this model, the association between the variables analyzed and time is analogous to an onion skin. The most distal factors represent the outer skin, and each level closer to the dependent variable represents a successive inner layer of the onion, with the center being the dependent variable. Just as all the layers of the onion are present at any point in time, so were all the factors analyzed present simultaneously.

CHAPTER II

LITERATURE REVIEW

The following literature review examines results from various studies of family structure, adolescent sexuality and premarital sexual intercourse. Most of the articles reviewed have been published since 1980, with only a few published previously. The purpose of this review is to give some orientation to the results of recent research; and to introduce some of the theories and working hypotheses in the area of adolescent sexuality research.

The literature suggests several factors as being central to adolescent premarital intercourse. Chilman (1980) divides these into three major categories: Social, situational and cultural; psychological; and biological. There are many subcategories which might be included in each major category. These include, society's permissive sex norms, racism and poverty, parents' education, peer influence, social class, the use of drugs and alcohol, low self esteem, educational and achievement goals, low religiosity, strained parent-child relationships, risk-taking attitudes, and early puberty (Chilman, 1980; Jessor, Costa, Jessor, & Donovan, 1983; Wagner, 1980).

The trend during the last 50 years has been toward increasing sexual permissiveness. This has led to increased acceptance of behaviors that were once thought to be immoral or wrong, and were not condoned by society (Wagner, 1980). More recently, beginning about 1967, there has been a dramatic increase in premarital sexual activity (Chilman, 1980; Dreyer, 1982; Hayes, 1987). Increased sexual activity has led to an increase in sexually transmitted diseases, illegitimate births, and therapeutic abortion (Rice, 1978).

The reasons that adolescents participate in sexual intercourse are varied. It would appear that the initiation of sexual intercourse is related to the psychosocial development of the individual (Jessor et al., 1983). The psychosocial meanings that sexual intercourse has for the adolescent include a declaration of independence from parents, the affirmation of a sexual identity, and the assurance of the capability for interpersonal intimacy (Hopkins, 1977; Jessor & Jessor, 1974). Jessor et al. (1983) outline the reasons given by young men and women for engaging in first sexual intercourse as being 85% affective, 19% helping to cope and bolstering self esteem, and 5% for reasons of role obligation.

Family Characteristics

The characteristics of the adolescent's family are very important in his or her socialization, which, in turn, is important in the determination of sexual attitudes and behavior. For this reason an understanding of the association between family characteristics and adolescent attitude development is necessary for an understanding of adolescent sexual behavior.

Family Structure

Family structure changes periodically as a result of normative and non-normative life events. Normative life events that alter family structure are illustrated by events such as graduation from high school or college, and marriage, which result in the absence of a member of the family. Non-normative life events that result in changes in family structure can be illustrated by death, divorce and abandonment. If one of these changes in family structure results in the absence of one or both of the parents, the effect on the children could be lasting (Wallerstein & Kelly, 1976).

Numerous studies have been conducted on the effects of father absence on children. Hetherington (1972) found that father absence due to divorce and death had differential effects on adolescent girls. She found the

effect of the father's absence manifest mainly in seeking physical proximity to men, attention and physical contact seeking, and nonverbal communications of openness and responsiveness. These behaviors were associated with earlier and more frequent intercourse among girls from divorced families, than girls from families where the father had died. Hogan and Kitagawa (1985) reported that girls from nonintact families have rates of early intercourse that are one third higher than girls from intact families. They further explain, that adolescents whose parents were married when they reached age eleven were four percent less likely to get pregnant prior to marriage. Young women from divorced and reconstituted families consistently report a higher level of sexual experience than girls from intact families (Kinnaird & Gerrard, 1986; Miller, McCoy, & Olson, in press; Rodgers, 1983; Stern, Northman, & Van Slyck, 1984).

Family Modeling and Sibling Structure

Modeling may also account for the increased sexual activity manifest by daughters from divorced families. If the single parent is sexually active, this would encourage the same behavior in their daughters (Hetherington, 1972). Daughters from intact families

where the parents are sexually active with each other may not be as apt to initiate sexual activity at an early age, since their parents' sexual relationship is within marriage. This would be especially true for adolescents whose parents were not sexually active prior to marriage (Thornton & Camburn, 1987).

Certain factors in the sibling structure also appear to have an effect on adolescent sexuality. Steelman and Powell (1985) studied the effects of birth order and number of siblings on social success. They found that later born children had better social skills and greater social success. Steelman and Powell (1985) also reported that the larger the family the more likely it is for an older sibling to be sexually active (Hogan & Kitagawa, 1985). Sexual activity among older siblings sets an example for younger siblings, which may result in more sexual activity among younger siblings (Hayes, 1987). In addition, Rodgers (1983) found that the number of brothers in a family correlated with higher sibling sexual activity. He attributed this effect to the masculinization of the environment that results in families with a male majority.

A similar modeling effect is seen in the children of parents who were sexually active prior to marriage. These children, like their parents, are more likely to be sexually active before marriage (Thornton & Camburn,

1987). The premarital sexual activity of the parents may be interpreted by their children as a license to do the same, even though their parents may be opposed to premarital sexual activity. Hence, in many cases the modeling of parents appears to have a greater impact on the behavior of their adolescent children than do parental exhortations.

Parent-Child Relationship

The relationship between parents and their children is also an important factor related to adolescent sexual behavior (Fox, 1981; Miller, McCoy, Olson, & Wallace, 1986). Adolescents with mothers who fail to combine affection with firm, but mild discipline tend toward sexual initiation at an earlier age (Chilman, 1980). Closeness of children to their parents relates to delayed involvement of the children in heterosexual activities such as necking, petting and intercourse. Delayed involvement in such activities results from enhanced communication on sexual topics that occurs when children have a close, comfortable relationship with their parents (Wagner, 1980). There is evidence that adolescents receiving information about sex from their parents are sexually more restrained and accountable (Lewis, 1973; Miller & Simon, 1974; Shah, Zelnik, &

Kantner, 1975), hence, decreasing premarital sexual activity during adolescence.

Goal Setting and Planning for the Future

Positive attitudes concerning education, higher levels of educational achievement, and clear educational goals are inversely associated with adolescent intercourse experience among both blacks and whites (Chilman, 1980; Hayes, 1987; Miller & Sneesby, in press). Jessor et al. (1983) found that individuals still maintaining their virginity at the ages of 23 to 25 tended to have a higher education than nonvirgins of the same age. This may result from a correlation between high school dropout rates and sexual activity (Hayes, 1987).

Attitudes about education may be a strong predictor of sexual behavior. Parents' educational attainment, and attitudes about education, are associated with their children's attitudes about education and subsequent achievement (Hayes, 1987). This association between parents' attitudes about education and their children's attitudes is possibly a function of the type of discipline used (eg. induction, love withdrawal or power assertion), and modeling, both resulting in either the

presence or absence of a learning environment in the home.

Children's attitudes about education relate to their attitudes about sex, and their subsequent sex behavior (Miller & Sneesby, in press). The National Research Council (Hayes, 1987) report showed that mother's education correlates with delayed initiation of sexual intercourse in all groups. In addition, children with more highly educated parents tend to set more goals and value achievement more highly. These children tend to be more goal oriented, and to be oriented more toward work than play. Chilman (1980) suggests that teenagers with these qualities are less likely to engage in premarital intercourse while in junior high or high school. For young females, she suggests that their involvement in educational achievement may inhibit their interest in boys or make them less attractive to boys.

Individual Characteristics: Identity Religiosity, and Delinquency

The search for a personal identity is generally accepted as the major theme of adolescence. It would appear that identity, as well as other personality characteristics, are related to adolescent sexual behavior (Hopkins, 1977; Jessor & Jessor, 1974; Wagner, 1980). It also seems that nonvirgins are more likely to

have a risk taking attitude. Lower ego strength is also associated with nonvirginity, especially in girls (Chilman, 1980).

Religious beliefs, part of ideological identity, are also associated with adolescent sexual behavior. The literature shows that religiosity is inversely related to adolescent sexuality (Jessor & Jessor, 1974; Jessor et al., 1983; Miller et al., 1986). In addition, religious affiliation also appears to be related to adolescent sexual behavior. The National Research Council report (Hayes, 1987) indicates that fewer adolescents belonging to fundamentalist Christian religions report premarital sexual activity than adolescents of any other religious denomination.

In addition to religious aspects, it appears from the literature that sexually active adolescents are often involved in a variety of other behaviors, some of which are not condoned by society. Verner and Stewart (1974) found a significant relation between involvement in sexual intercourse and shop lifting, car theft, vandalism, assault and reckless driving. Sexual intercourse experience also correlates with substance abuse, including tobacco, drugs and alcohol abuse (Jessor & Jessor, 1974).

Biological Factors

Since the discovery of hormones in the early part of the twentieth century, their role in adolescent sexual behavior has been taken for granted. In recent years, research has been conducted that is directed specifically at identifying the exact hormones that stimulate sexual behavior. This research has shown that androgens, the primary hormones of male puberty, are "responsible for all aspects of pubertal development, and are also believed to be responsible for libido" (Udry, Talbert, & Morris, 1986, p. 223). The mechanisms are distinct in females where the major hormones of pubertal development are estrogens, and the hormones related to libido are androgens. Thus, different groups of hormones are responsible for pubertal development and libido.

Hormones differentiate the sexual progress of females more than age or pubertal development (Udry, Billy, Morris, Groff, & Madhwa, 1985; Udry et al., 1986). This is not to say that hormones function independently of social factors. Quite the contrary is true, since heterosexual relationships do not develop without some social interaction, but the hormonal effects are a major motivator in the development and maintenance of heterosexual relationships.

Social Consequences Associated
with Age at Menarche

Udry and Cliquet (1982) studied the cross-cultural relations between age at menarche and subsequent age at first intercourse, marriage, and birth. In this cross-cultural study, age at menarche proved to be a powerful predictor of both age at marriage and age at first birth, while age at first intercourse was highly variable. A possible explanation for this strong association, is that social perceptions of young women as appropriate participants in heterosexual relationships are, at least partially, dependent upon the physical and emotional changes occurring during puberty.

CHAPTER III

METHODS

Related Theories and Empirical Generalizations

Not many theories have been developed in the area of adolescent sexual intercourse behavior. However, there are several generalizations that are fairly common and well accepted. Most of these generalizations are in the areas of the adolescent's age, race, sex, and socioeconomic status (Miller et al., 1986).

As the adolescent's age increases, it becomes more likely that intercourse will occur. This is probably due to increased interest in the opposite sex, increased sexual desire, increased mobility and opportunity for privacy, as well as increased and more steady dating, which occur with increased age. These factors combine to increase the chance that the right combination of people, day and circumstance for intercourse, will occur (Hayes, 1987).

Race consistently correlates with virginity status. Black adolescents tend to initiate sexual intercourse at an earlier age (Hogan & Kitagawa, 1985), and to participate in coitus more often than their white counterparts. This race effect is probably a result of both socioeconomic status (SES) and culture. Social

class may modify the adolescent's outlook on marriage and family rearing, and hence, alter his/her outlook on premarital sex (Hayes, 1987; Zelnik & Kantner, 1972). This is likely the case, since SES corresponds closely to sexual experience for females, if not both sexes. Girls from lower socioeconomic class have an earlier age at initiation, and greater frequency of intercourse than do girls of higher social class (Chilman, 1980; Hayes, 1987).

Gender is also a correlate of virginity status. Males tend to initiate the transition from virginity to coitus at an earlier age than females and to participate in intercourse more frequently. However, by late adolescence the number of sexually experienced males and females are about equal (Hayes, 1987).

Hypotheses

In this segment of the study, relations between social economic variables, parent's marital status, other's influence, religiosity, future planning, church attendance, tobacco smoking behavior, and adolescent sexual experience are hypothesized. The hypotheses are organized by variable blocks, and proceed from the most distal to the most proximal variable blocks.

Socio-Economic Block Hypotheses

Adolescents whose parents have higher education levels also set more educational goals, and are more work and achievement oriented. Work and achievement oriented females, especially, have fewer heterosexual relationships. This is probably due to a primary interest in work and aspiration over heterosexual relationships. It is also possible that males may not perceive achievement oriented females as being attractive (Chilman, 1980). Because parents with higher educations generally have the highest incomes, and because of the relation between parents' education and their children's attitudes toward achievement, associations between household income and age at first intercourse and average parental education are expected.

Hypothesis 1a: There will be a direct relation between household income and age at first intercourse.

Hypothesis 2a: There will be a positive association between average parental education and age at first intercourse.

Social Situation Block Hypotheses

Adolescent females from nonintact families are expected to make the transition to nonvirginity at an earlier age because they lack experience with individuals of the opposite sex. This lack of

experience may lead to inappropriate behavior, resulting in premarital intercourse (Hetherington, 1972). Another factor may be a lower need for security that adolescents from intact families experience, hence, they are less likely to seek security from a source external to the home. This, in turn, makes them less likely to be involved in heterosexual relationships leading to premarital intercourse.

Hypothesis 1b: Adolescents from single parent and reconstituted families will report a younger average age at first intercourse.

Adolescents who are easily influenced by what other people think are more likely to be persuaded to participate in premarital intercourse.

Hypothesis 2b: Adolescents who are influenced by the opinions of others will report earlier age at first intercourse.

Individual Values Block Hypotheses

Individuals with the highest religiosity are expected to postpone the transition to nonvirginity until a later age, if not until after marriage. This is a direct result of the principle of chastity taught by nearly all religions.

Hypothesis 1c: Religiosity and age at first intercourse will be directly related.

Adolescents who are future oriented, and actively plan for the future, and who also have higher aspirations, are expected to be more work and achievement oriented and less involved in activities that might lead to sexual intercourse. An orientation to future achievement and planning may also make young females less attractive to males their own age, and more cautious about risking pregnancy, leading to less heterosexual interaction (Chilman, 1980).

Hypothesis 2c: There will be a positive association between ideal age for marriage and age at first intercourse.

Hypothesis 3c: There will be a positive association between ideal age for first birth and age at first intercourse.

Hypothesis 4c: There will be a positive association between educational aspirations and age at first intercourse.

Adolescents who enjoy taking risks are expected to feel less concern for the risks involved in premarital intercourse. They are expected to be more sexually active at a younger age.

Hypothesis 5c: There will be a negative correlation between risk enjoyment and age at first intercourse.

Individual Behavior Block Hypotheses

Adolescents who attend church most often will postpone the transition to nonvirginity to a later age or after marriage. This is a result of the doctrine of chastity taught by most religions.

Hypothesis 1d: Church attendance and age at first intercourse will be directly related.

Tobacco smoking behavior and premarital intercourse may, in many instances, have the same motivations (e.g., acting out, attention or acceptance seeking, etc.), and are expected to be associated.

Hypothesis 2d: Adolescents who smoke will be younger at first intercourse.

Hypothesis 3d: Age at initiation of tobacco smoking will be directly related to age at first intercourse.

Hypothesis 4d: Frequency of tobacco smoking and age at first intercourse will be inversely related.

Adolescents who take risks are more likely to risk pregnancy, and become involved in premarital intercourse.

Hypothesis 5d: There will be an inverse association between risk taking and age at first intercourse.

Research Sample and Population

In 1979 a national survey of young women, ages 15 to 19 was conducted. The population encompassed households in the continental United States that were included in the Standard Metropolitan Statistical Areas (SMSAs). A random process was used to select one suitable respondent from each household with age being the only eligibility requirement considered (Data Archive on Adolescent Pregnancy and Pregnancy Prevention, 1985). The total sample included 1717 adolescent females ages 15 to 19. This study focuses on the sexual activity of single, nonvirgin adolescents. For this reason, all virgins and all married subjects were excluded from statistical analysis, since their sexual behavior would be qualitatively, if not quantitatively, different.

The principal investigators from the 1979 study were Melvin Zelnik and John F. Kantner. The 1979 survey is the latest of three surveys conducted to estimate premarital pregnancy, sexual activity, and contraceptive use among teenage women. The results of these studies were reported in several publications written by Melvin Zelnik, John F. Kantner and their associates (Data Archive on Adolescent Pregnancy and Pregnancy Prevention, 1985).

All ethical considerations for the collection of this data have previously been addressed by the principal investigators. The data set does not contain information regarding the subjects' identities, thus guaranteeing their complete anonymity.

Research Design

A correlational design is required to assess the relations in this investigation. A large preexisting national data set was used. The data set was provided by DAAPPP, and was acquired by Brent C. Miller in the College of Family Life, Utah State University.

Measurement

The variables considered in this study were divided into six categories of independent variables, one dependent variable and four control variables.

The six groups of independent variables are as follows:

- 1- Parent's marital status was subdivided into three categories; namely, subjects having two biological parents, one stepparent and one biological parent, and those having a single biological parent.

- 2- The social interaction variables were divided into two groups, the first group, including two questions, measures risk-taking attitudes. The other

group consists of only one question, and measures the influence of others by asking how much the adolescent's ideas are influenced by what their peers think.

3- Future planning is measured by three variables that list school goals, the age the respondent thinks would be ideal for marriage, and the age the respondent thinks would be ideal for becoming a parent.

4- The smoking variables indicate tobacco smokers and nonsmokers, the age at which the respondent began smoking tobacco, and the frequency of smoking.

5- The religion variables measure religiosity, and list church attendance.

6- The socioeconomic variables include total household income, and average parental education.

The dependent variable is reported age at first intercourse.

The control variables include the respondent's age, race, religious affiliation, and age at menarche. These control variables were selected so that non-mediated, direct effects between the independent variables and age at first intercourse could be assessed.

Reliability and Validity

The issues of reliability and validity are of chief importance whenever a phenomenon or behavior is measured. This is especially true in the measurement of

human behavior because of the complex interactions involved.

It has been common in the past for researchers to use the occurrence or nonoccurrence of sexual intercourse as an index for the measurement of sexual activity. This method has one inherent drawback that threatens validity. As pointed out by Rice (1978), adolescents may truthfully answer that they have never had sexual intercourse, and will be considered virgins, when in reality they are sexually active, using other methods of arousal and orgasm achievement. In the past this was of little concern to society, since extravaginal forms of sexual contact do not result in pregnancy. In recent years, however, with the increase in sexually transmitted diseases, especially Acquired Immune Deficiency Syndrome (AIDS) and Herpes virus, there is now a growing societal concern about nearly all modes of sexual contact.

In addition, there is general concern for the validity of survey data because of the subjectivity that is inherent in subject responses. This is especially true when questions are asked about the subject's personal attitudes and behavior. There is always the possibility of bias resulting from incorrect or untruthful responses. Because of the personal nature, and potential bias stemming from certain questions, it

becomes essential to assess their validity. In addition to sexual behavior, the validity of other questions in this data set are also of interest.

The variables used to measure goal setting, and social interaction may be the most questionable regarding reliability and validity. Standard instruments were not used to measure these traits. Instead, the only available questions from the data set that appear to closely relate to, or involve, goal setting, and social interaction were used. The questions selected to measure goal setting are: What is the ideal age for a woman to have her first baby?; What year of school do you plan to complete?; What is the ideal age for a woman to get married? Those questions chosen to measure social interaction were: Are your ideas changed by what other people think?; Are you a person who takes chances?; Do you enjoy doing things that are considered dangerous? (Data Archive on Adolescent Pregnancy and Pregnancy Prevention, 1985).

Beyond the question of format, the usefulness of the data is further, and more critically, determined by the validity of the instrument used to collect it. Content, criterion-related, and construct validity are usually of interest in assessing the validity of instruments used to collect data. Because there are no external criteria to use in assessing criterion-related

validity, and because the survey items were previously selected and applied, criterion-related, and content validity cannot be assessed.

Construct validity can be demonstrated by showing that a specific measure associates with other measures in a theoretically predicted way. The construct validity of the sex behavior question raised previously can be demonstrated by showing that the behavior of subgroups within the data (e.g., males vs. females, blacks vs. nonblacks etc.) are associated in theoretically predictable ways. This same method can be used in assessing the validity of the questions used to assess goal setting and social interaction behavior. For example, if individuals respond that they do enjoy taking chances and that they also are influenced by what other people think, and if they are sexually active at an early age, the construct validity of these questions would be strengthened.

Analysis Procedures

Before analyzing the data, the machine readable files were read into a VAX Mainframe, account file. After retrieving the needed files from the tape, the next step was to look at the variables of interest, and decide which ones to use in the study. This included running frequencies, measures of central tendency, and

variance. The Statistical Package for the Social Sciences, Version Ten (SPSSX) was used in this, and all subsequent statistical analyses.

After inspecting the variables to be used, several were combined and condensed to create new, more useful variables, for analysis. The alterations made included computational and recoding procedures. Average parental education was computed by adding fathers and mothers reported education and dividing it by two. The respondent's age when tobacco smoking was initiated was computed by subtracting the year the respondent reported having begun to smoke from 80 (representing the year 1980) and subtracting that quotient from the respondent's reported age when the interview was conducted. In addition to these alterations, respondent's religion and parent's marital status were coded as dummy variables using least constraints coding. Recoding in addition to the above computations was conducted on parent's marital status, others' influence, religiosity, ideal age for marriage, ideal age for first birth, enjoyment of risks, risk-taking, smoking frequency, religion, and age at first intercourse in order to make them conform to the analysis requirements. Finally, all married subjects and virgins included in the data set were excluded from statistical analyses.

The next step involved removing the variables of interest from the original data set and placing them in a file of their own. This made analysis less costly and more time efficient. Finally, statistical analysis of the data were performed using SPSSX.

In this step the variables were entered into the model in blocks proceeding in a distal-proximal direction. The analysis was conducted in such a way so that interaction effects could be assessed. The socioeconomic variables were entered first. These variables include total household income, and parent's education. The second block entered consisted of the social situation variables which include the family structure variables and other's influence. The personal variables, including individual values and behaviors, were entered last. The individual value variables include religiosity and future aspirations. The behavior variables included church attendance and tobacco smoking behavior.

CHAPTER IV

RESULTS

Reliability and Validity

As previously discussed, reliability assessment is not possible when single item analysis is used. In addition, criterion-related validity cannot be assessed, since no external criterion is available for this type of validity assessment.

Despite the numerous limitations on validity testing, it is possible to indirectly assess construct validity by showing that measures are associated in theoretically predictable directions. In this analysis the construct validity of the dependent variable, age at first intercourse, was assessed. This appraisal was accomplished using religion, SES, risk-taking, and parent's marital status variables. Analysis showed that these variables relate to age at first intercourse in theoretically predictable ways.

Results showed that adolescents from higher SES families, on the average, reported sexual initiation at later ages than do adolescents from lower SES families (15.5 and 14.9 years). In addition, adolescents from intact families initiated later than those from reconstituted and single parent households (15.6

compared to 15.1 and 15.0). Race was also a distinguishing variable with Whites initiating intercourse at a later average age than Blacks (15.7 and 14.9). Smaller differences were found between high and low religiosity groups (15.4 and 15.2), risk enjoyment and non-risk enjoyment groups (15.2 and 15.3), and risk-taking and non-risk-taking groups (15.2 and 15.5).

Because these variables relate to the dependent variable in theoretically predictable ways, the validity of the dependent variable is thought to be upheld. Though this validity analysis is not ideal, it will need to suffice due to the limitations presented by the data set analyzed.

Data Analysis Procedures

Data analysis proceeded via two basic steps. In the first step descriptive statistics were calculated for all variables included in analysis. Statistics calculated include measures of central tendency, standard deviations and simple linear correlations. These statistics provide all information necessary for reexamination or retesting of any full or partial component of the model that interested readers may wish to conduct. In addition, the assumptions for linear regression were analyzed, and all assumptions were met.

The second step included a sequential blocking strategy designed to indirectly assess distal-proximal relationships existing between related, yet temporally different groups (blocks) of variables. That is, clusters of variables thought to differ temporally were grouped together in blocks. These blocks were then sequentially regressed in a temporally, distal-proximal order on the dependent variable (age at first intercourse).

Descriptive Statistics

Table 1 summarizes the mean, median and/or mode along with the standard deviation and sample size for each of the variables used in analysis. Given the measurement level, and manner of variation of certain variables, consideration of the median and/or mode in addition to the mean aids in understanding the nature of nominal and ordinal variables, and in determining the extent of skewness existing in ordinal and interval variables found within this sample.

Table 2 includes a matrix of simple linear correlations (Pearson Product-Moment). All possible correlations between the 19 variables included in the full model are presented. Since tables 1 and 2 include information concerning central tendency, dispersion, sample size and correlation, it is possible to use these

Table 1

Univariate Statistics Showing Medians and Modes Where
Appropriate.

Variable number and description	Mean	md	mo	s	n
<u>Socio-economic variables</u>					
1- Household income	10.405	11	15	3.855	724
2- Parent education	11.552	--	--	2.481	663
<u>Social-situation variables</u>					
3- Parent's marital status	1.619	1	1	.744	814
4- Are respondent's ideas changed by others opinions	2.365	2	2	.906	814
<u>Individual values</u>					
5- Religiosity	4.020	4	6	1.536	811
6- Ideal age for marriage	22.687	22	25	3.114	677
7- Ideal age for first birth	22.448	22	25	3.314	658
8- Educational aspiration	14.349	--	--	1.891	714
9- Risk enjoyment	1.238	--	1	.426	789
<u>Individual behavior</u>					
10- Church attendance	1.538	--	--	2.770	814
11- Does respondent smoke?	1.499	--	1	.500	814
12- Age respondent began smoking	12.462	--	--	2.358	514
13- Smoking Frequency	6.901	--	--	8.112	809
14- Does respondent take chances?	1.635	--	2	.482	795
<u>Dependent variable</u>					
15- Age at first sexual intercourse	15.311	15	15	1.758	814
<u>Control variables</u>					
16- Age	17.337	--	--	1.323	814
17- Race	1.479	--	1	.500	814
18- Religious affiliation	2.040	--	1	1.069	796
19- Age at menarche	12.159	--	--	1.538	807

Table 2

Pearson Product-Moment Correlation Coefficients of all
Variables Used in the Full Model.

Variable Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1	1.00	.26	-.26	-.02	-.01	.10	.26	.12	.04	.06	.07	.00	.01	.04	.21	-.03	.32	.16	-.01	
2		1.00	-.04	.02	-.13	.19	.34	.29	.05	-.03	.08	-.05	-.05	-.01	.13	.02	.22	.12	.02	
3			1.00	-.01	-.01	.01	-.07	-.12	-.02	.04	-.05	-.08	.02	.01	-.13	-.09	-.21	-.05	.01	
4				1.00	.03	-.07	-.11	-.06	.02	.00	.04	.07	-.02	.01	.02	-.03	-.01	-.05	.07	
5					1.00	-.06	-.15	.13	-.16	.53	.12	.15	-.22	-.10	.07	.08	-.28	-.32	.01	
6						1.00	.53	.18	.08	-.05	.01	.01	-.03	.07	.06	.14	.00	.06	.00	
7							1.00	.29	.10	-.04	.06	-.01	.02	-.01	.25	.13	.37	.14	-.06	
8								1.00	.01	.12	.18	.01	-.20	-.01	.20	.29	-.03	-.03	.01	
9									1.00	-.06	-.07	-.11	.08	.25	-.03	-.01	.16	.06	.02	
10										1.00	.15	.06	-.15	-.07	.04	-.03	-.14	-.06	.02	
11											1.00	.02	-.62	-.15	.12	.01	-.15	-.05	.04	
12												1.00	-.17	.00	.23	.37	-.09	-.01	.12	
13													1.00	.07	-.08	.04	.34	.07	-.03	
14														1.00	-.06	.01	.00	.05	.04	
15															1.00	.37	.22	.04	.17	
16																1.00	.02	.00	.05	
17																	1.00	.24	.02	
18																		1.00	.02	
19																				1.00

two tables in combination to conduct any desired reanalysis of the distal-proximal variable block model.

An examination of Table 1, which provides descriptive statistics on all variables, indicates that median household income for this sample is \$12,000. This is considerably lower than \$16,461 which was the median United States (U.S.) income in 1979 (United States Bureau of the Census, 1986).

In order to have a sub-sample of Blacks large enough to analyze statistically, Black households were specifically over-sampled. This sampling procedure resulted in a sample that is not representative of the Black to nonblack ratio existing in the U.S. in 1979. The low median household income occurring in this sample is most likely a result of the disproportionate number of Blacks that were included in this sample. This is especially true when the prevalence of poverty among Black families is considered. Indeed, an examination of national data on median household income in 1979 for Whites and Blacks reveals that the latter is considerably below that of the former for this measure. The United States Bureau of the Census (1986) reports that in 1979 the median household income for Blacks and Whites was respectively \$10,133 and \$17,259. This corresponds with a sample median household income of

\$10,000 to \$11,999 for Blacks and \$15,000 to \$19,999 for Whites.

No other findings in Table 1 appear to be particularly striking or to suggest immediate qualification.

A Sequential Block Analysis: Distal- Proximal Associations

To assess the potential for distal-proximal effects, a sequential block analysis was performed using a hierarchical regression model based on forced entry of all variables within each block. This was accomplished by first entering the control variable block into the equation. This was followed by the socioeconomic, social situational, individual values and individual behavioral blocks of variables separately.

In the first step of this process the control variables, including respondent's age, race, three dummy variables representing respondent's religion, and age at menarche, were regressed on the dependent variable, age at first intercourse. As shown in Table 3, these six variables making up the control block accounted for 23.6% of the total variance explained by the model (R^2). Respondent's age, race, and age at menarche were significant to the .001 level, and the dummy variables D2 and D3, representing religious affiliation, were

Table 3

Standardized Betas Resulting from Regression on Blocks
of Variables Entered in a Distal-Proximal Order,
Controlling for the Effects of Respondent's Age, Race,
Religion, and Age at Menarche.

Variable numbers	Model 1	Model 2	Model 3	Model 4	Model 5
<u>Control variables</u>					
16	.3796***	.3855***	.3840***	.3817***	.3755***
17	.1604***	.1059*	.1000*	.0557	.0779
18					
D1	.0821	.0865	.0851	.0454	.0580
D2	.1955**	.1884**	.1852**	.1420*	.1639*
D3	.1324*	.1186	.1147	.0817	.0870
19	.1833***	.1601***	.1830***	.1947***	.1856***
<u>Socio-economic variables</u>					
1		.1527***	.1448**	.1190**	.1187**
2		.0214	.0225	-.0150	-.0222
<u>Social-situation variables</u>					
3					
W1			.0434	.0490	.0311
W2			.0151	.0415	.0400
4			.0197	.0344	.0210
<u>Individual values variables</u>					
5				.0510	.0299
6				-.1414**	-.1340**
7				.2499***	.2313***
8				.0590	.0282
9				-.0793	-.0549
<u>Individual behavior variables</u>					
10					-.0222
11					.0995
12					.0787
13					-.0406
14					-.0258
R ² =	23.6	25.8	25.9	30.9	32.9
n =	538	538	538	538	538

* p < .05.

** p < .01.

*** p < .001.

significant to the .01 and .05 levels respectively. In step two, while controlling for the control variables, a significant increase of 2.2% was observed for inclusion of the predictor variables, total combined household income and average parental education, contained in the socioeconomic block. As illustrated in Table 3, total combined household income was the only significant variable in this block (.001). In step three, while controlling for both the control and socioeconomic blocks of variables, an increase of only .1% was observed as a result of including the predictors in the social situational block of variables, which consists of two dummy variables representing parent's marital status and the influence of others on the respondent's ideas. None of the social situation block variables reached a minimum level of significance. In step four, while controlling for all previous blocks of variables, a significant increase of 5% in predictable variance was observed for inclusion of the variables in the individual values block, consisting of religiosity, educational aspiration, ideal age for marriage (.01), ideal age for first birth (.001), and enjoyment of danger (.05). Finally, in step five, while controlling for all previous blocks of variables, an increase of 2% of variance was observed for variables in the individual behavioral block. These variables include frequency of

church attendance, risk-taking, and the smoking behavior variables, all of which failed to meet a minimum level of significance.

These findings indicate that the control block variables accounted for most of the predictable variability in sexual behavior. However, the four significant variables from the socioeconomic and individual values clusters added approximately 7% additional predictive variance to the model (see Table 3). The individual items accounting for this increase included total combined household income, ideal age to get married, ideal age for first birth, and enjoyment of dangerous or risky behaviors.

One tentative conclusion from these findings is, that contrary to the distal-proximal assumptions outlined earlier, relatively little support is found for utilizing a sequential distal-proximal predictive association when implementing the blocking statistical strategy.

CHAPTER V
DISCUSSION

This section will proceed via three steps. First, the methodological framework utilized in this study will be reviewed. Second, findings and implications resulting from this research will be examined. Finally, methodological and theoretical issues involved in analyzing extant data will be discussed.

Methodological Framework: Distal
to Proximal Distinctions

The methodological framework chosen for the descriptive analysis of factors associated with early intercourse experience among adolescent females presents constructs in order of their proximity to the adolescent. Proximity of a construct or variable increases with the ability of the adolescent to control or be personally involved with the constructs or variables in question. Hence, proximity is greater for those constructs for which the adolescent has total control or exclusive involvement. Examples of such constructs are personal values or the behavioral expression of those values.

Similar methodological frameworks have been applied in many analyses to test various construct associations

such as economic and social factors in mate selection, parental income and adolescent job expectations, adolescent deviance behaviors, religion and women's work continuity to name just a few (Davis-Brown, Salamon, & Surra, 1987; Galambos & Silbereisen, 1987; Jessor & Jessor, 1974; Jessor et al., 1983; Morgan & Scanzoni, 1987). The distal-proximal framework is neither new nor unfamiliar to the research literature on adolescence, but has been used in multiple applications.

According to the definition of proximity, socio-economic constructs are identified as the most distal. Adolescents have little influence on their parent's levels of education, or on the level of income which their parents earn. The adolescent's involvement in the formal education of their parents is negligible, yet adolescents are influenced in many ways as a result of the educational level attained by their parents.

In this analysis, social situation variables are next in proximity to the adolescent. Included within the social situation construct are parent's marital status and others' influence. The adolescent is more involved in the dynamics of both of these variables, than in the SES variables, and even exerts some control over the extent to which their ideas are influenced by those of others. The amount of involvement and/or control the adolescent experiences continues to increase

with constructs involving individual values and behaviors.

The distal-proximal framework was implemented while controlling for respondent's age, race, religion, and age at menarche. These variables were chosen as controls so that the contributions of the independent variables in the model could be assessed net of the controls. Controlling these variables was justifiable for several reasons.

Respondent's age was controlled in order to eliminate bias arising from the cross-section of developmental stages represented in the sample. Because adolescents from the ages of 15 to 19 were answering the same questions, there was concern over the possibility that biases resulting from age-related developmental differentials would confound the results. To limit age related biases stemming from differential developmental issues, age was entered into the model as a control.

Because they have had more time to develop into formal operations, a 19-year-old as compared with a 15-year-old would have a distinct perception of what would constitute an ideal age for marriage or first birth. In an attempt to account for such differences, respondent's age was controlled.

Because of the possibility that SES may be confounded by race effects, SES and race were analyzed

distinctly. Respondent's race was controlled, and SES was used as an independent variable in an attempt to account for the possible interaction of race and SES.

Miller and Bingham (in press) found that religiosity, rather than religious affiliation, is a better predictor of sexual behaviors, including intercourse. In order to prevent extraneous effects resulting from religious orientation, religion was included in the model as a control. This allowed the association of religiosity to age at first intercourse to be analyzed net of religion.

Finally, age at menarche was included as a control because of the difficulty encountered in trying to justify its inclusion in any of the existing blocks. This was coupled with reluctance to create another independent block containing only one variable. By including age at menarche as a control, the entire model was given a common biology, eliminating confounds resulting from differential rates of physiological maturity.

Findings and Implications

As a result of analysis, the independent variables in the model can be placed into three different categories (see Table 3), those variables never reaching a minimum level of significance in any of the models,

categories (see Table 3), those variables never reaching a minimum level of significance in any of the models, variables varying in level of significance across models, and those that were highly significant across all models. Of all the variables in the model, only those reaching some level of significance will be considered further.

Control Variables

The control variables account for the majority of the variance in the model. This implies that further research may benefit by the inclusion of these variables as predictors of age at first intercourse. In addition, intervening variables need to be identified.

The control variables themselves supply interesting information regarding their interaction with age at first intercourse. First, chronological age predicts an older age at first intercourse. This relation is not surprising and has been identified in previous research (Zelnik & Kantner, 1980; Zelnik, Kantner, & Ford, 1981).

Race is also a significant predictor of age at first intercourse, with Blacks reporting earlier ages at first intercourse than nonblacks. This is also a consistent finding in previous research (Shah et al., 1975; Zelnik & Kantner, 1972; Zelnik & Kantner, 1977;

It is also intriguing that race decreases in significance when the SES block of variables is entered, and becomes non-significant when ideal age for marriage and ideal age for first birth enter the model. This implies that race is partially explained by the effects of SES, but that it is also a function of subculture influences and beliefs concerning marriage, childbirth and childrearing.

The association of race to SES seems especially clear when considering that certain Black subcultures experience extreme poverty, social disorganization and overcrowding. Such an environment is not conducive to a orientation toward mastery of self and future, and may lead to feelings of apathy, alienation, and powerlessness. This mental orientation, coupled with the importance of sexual experience for black males, results in younger ages at sexual initiation, and greater subsequent sexual activity.

In addition to the adverse effects of low SES, the subcultural beliefs concerning sexual behavior may also promote early sexual initiation. This seems especially clear from the results of several studies which indicate that certain Black subcultures accept, and may even expect young Black women to conceive and bear their first child prior to marriage (Billingsley, 1970;

Ladner, 1971; Rainwater, 1970; Schultz, 1969; Zelnik & Kantner, 1972).

Another control variable, religious affiliation, has a moderately significant effect on age at first intercourse, with respondents associated with fundamentalist religions reporting later ages at first intercourse than catholics and protestants (Miller & Bingham, in press; Zelnik et al., 1981).

Age at menarche was highly significant in predicting age at first intercourse. This suggests that physical appearance and physiological drives that emerge during puberty are significant in determining onset of sexual activity, including intercourse behavior (Udry & Cliquet, 1982; Udry et al., 1985; Udry et al., 1986).

Two variables, respondent's age and age at menarche both maintained a high level of significance across all models. This seems to indicate the importance of physiological appearance and stage of development as it effects the intercourse behavior of adolescents. Indeed, physiological maturity has important meanings for pubertal adolescents. Research results seem to indicate a differential psychosocial significance of pubertal growth and maturity for gender. For males, attainment of a mature physique is associated with many advantages, including independence, and more attractiveness to peers and adults (Clausen, 1975;

Jones, 1965). For females, pubertal growth, especially when it occurs early, is more stressful, and has fewer advantages. Some of the disadvantages of early maturity experienced by young women are a lack of popularity and an increased frequency of psychological disturbance (Simmons, Blyth, & McKinney, 1983).

In general, it appears that sexual maturity is a more stressful experience for females than for males. Early maturity appears to be associated with increased social acceptance, and positive self image for males, and a lowered self image and more social difficulty for females. If this is true, the significance of chronological age and age at menarche may be partially explained by the insecurity felt by many early maturing females. These females may be more willing to participate in sexual intercourse in order to maintain relationships or to avoid the risk of losing relationships. Hence, the stress and difficulties of early maturity experienced by females may predispose them to early intercourse experience.

In sum, this analysis suggests that respondent's age and age at menarche are important variables predicting age at first intercourse, and that intervening variables need further elucidation. It is also suggested that SES and subculture effects may both

be required to explain race differences rather than SES or subculture influences alone.

Socio-Economic Status

A plethora of studies have identified a relation of SES to adolescent intercourse behavior, however, a direct association without intervening variables seems incomprehensible. Some speculation and research have been directed toward identifying these intervening variables. Among lower SES populations fatalistic, anti-intellectual, anti-institutional, apathetic, hopeless, and distrustful attitudes are likely to develop. These attitudes are likely to interfere with interpersonal relationships, making them more shallow, and less effective at fulfilling individual emotional needs (Chilman, 1966; Ladner, 1971; Rainwater, 1970).

These attitudes, coupled with the severe conditions found in poor communities, are likely to lead to decreased concern for controlling life events. As a result, age at first intercourse is decreased, as adolescents live for the present rather than planning and preparing for the future.

Theoretical and Methodological Considerations

Though the analysis of extant data may initially seem simple, anyone attempting to reanalyze an existing

data set soon becomes aware of the methodological and theoretical difficulties inherent to secondary analysis. While secondary analysis avoids the difficulties encountered during data collection and coding, it should be remembered that secondary analysis does not necessarily begin where primary data gathering and coding ended. Instead, distinct problems arise in secondary analysis as a result of the theory and methodology used (or not used) during primary data collection and the theory and methodology used to guide secondary analysis.

Theoretical Concerns

It is commonly recognized by many scientists that research is most fruitful when it is conducted within the confines of some theory or conceptual framework (Kuhn, 1970). Frameworks, whether theoretical or conceptual in nature, are necessary to give research direction, to tie results together conceptually, and to increase the parsimony of individual, as well as collective research efforts. Without the direction provided by frameworks, research directions would be chaotic, and difficulty would be encountered in arriving at meaningful conclusions.

When analyzing extant data, choosing a theory can prove problematic unless the data to be analyzed were

collected using a framework that is suitable for analysis. Otherwise, identifying valid constructs or variables can become greatly frustrating or even impossible. For example, data collected under a behaviorist framework may be impossible to analyze from a cognitive orientation.

Therefore, the first issue that must be broached in conducting secondary analysis is the selection of a data set which is suitable for analysis within the specific framework chosen by the researcher. Only after the issues surrounding frameworks have been resolved can research proceed.

In this study, no theoretical or conceptual framework was used, however, a methodological framework was developed to guide analysis. Hence, the model shown in Table 3 is a descriptive model, depicting some of the variables in the adolescent's environment that have a significant association to age at first intercourse.

If a theoretical or conceptual framework had been employed, the model would have taken on predictive features, with the variable associations having an explanation based in theory. However, in this study the variables are conceptualized only on the basis of proximity, and not theoretical association to the dependent variable. It can be argued, however, that proximal influences maintain their effect within the

social, economic, and cultural contexts in which they are occurring. Hence, distal influences interact with proximal effects in predicting individual behavior. This framework or perspective is most closely aligned to the human ecological model of human development.

Methodological Concerns

Even after an appropriate framework has been chosen, the frustration of secondary analysis is not over, but may be just beginning to gain momentum. After the selection of a suitable framework, variables and constructs must be selected for analysis and their reliability and validity must be assessed.

Reliability and validity assessment is often difficult, since it requires multiple tests of the same constructs, and multiple methods of construct measurement. The problem is made more complex in the case of criterion-related validity, in which external criteria must be identified in order for validity assessment to be made.

The process is made difficult by the fact that reliability and validity assessment must be planned for prior to data collection, and must be incorporated into the data collection instrument. If these considerations were not dealt with by the primary data collector,

reliability and validity assessment may become difficult, or entirely impossible to conduct.

In the case where reliability and validity assessment is impaired or impossible, the results of data analysis are brought into question due to the lack of evidence demonstrating which constructs were measured, and the degree to which they were consistently measured. Hence, even if an appropriate framework is used in analysis, the conclusions resulting from analysis may be hard to justify and may ultimately prove to be moot.

In this study, reliability testing was impossible due to the lack of multiple measures or repeated assessments in the data set. In addition, validity testing was restricted to the indirect analysis of construct validity which has been previously described. To the extent that validity testing was possible, it was thought that the data were valid.

In sum, when conducting secondary analysis, care should be given to the selection of a data set that was collected within the restrictions of a framework that is also appropriate for analysis. In addition, reliability and validity analysis are also issues that should receive serious consideration when analyzing extant data sets. If these issues are not considered in choosing appropriate data, the results of secondary analysis will

be questionable because there will be no clear indication of the extent of their reliability or validity and no framework holding the results into a coherent whole.

If I were to make future attempts to analyze extant data, a different approach would be used, implementing the steps and approaches outlined previously. More care would need to be taken in selecting a data set and a theoretical framework prior to choosing variables for analysis. In addition, more thought would be applied to reliability and validity evaluation prior to variable selection. This would allow items to be selected for use in reliability and validity testing. In essence, in future research utilizing extant data the procedures outlined in the sections on theoretical and methodological concerns would be followed.

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APPENDICES

Appendix A. Variable Names and
Coding Used in Analysis

Total Combined Household Income

1	None
2	\$ 1 to \$ 499
3	\$ 500 to \$ 999
4	\$ 1,000 to \$ 1,999
5	\$ 2,000 to \$ 2,999
6	\$ 3,000 to \$ 3,999
7	\$ 4,000 to \$ 4,999
8	\$ 5,000 to \$ 5,999
9	\$ 6,000 to \$ 6,999
10	\$ 7,000 to \$ 9,999
11	\$10,000 to \$11,999
12	\$12,000 to \$14,999
13	\$15,000 to \$19,999
14	\$20,000 to \$24,999
15	\$25,000 to \$49,999
16	\$50,000 and over

Average Parental Education

0	No schooling.
1	through 11 are years of schooling.
12	High school graduate.
13	First year of college.
14	Second year of college.
15	Third year of college.
16	Fourth year of college/college graduate.
17	Graduate school.

Parent's Marital Status

(Coded as Dummy Variables)

W1

0	Single biological parent and reconstituted family.
1	Two biological parents.

W2

- 0 Two biological parents and reconstituted family.
1 Single biological parent.

Others' Influence

- 1 No influence.
2 Very little influence.
3 Some influence.
4 A lot of influence.

Religiosity

(A Scale from 1 to 6)

- 1 Low religiosity.
6 High religiosity.

Ideal Age for Marriage

A continuous variable measured in years of age, indicating at what age the respondent feels marriage would be most ideal.

Ideal Age for First Birth

A continuous variable measured in years of age, indicating at what age the respondent feels the birth of their first child would be most ideal.

Educational Aspirations

A continuous variable measured in years, indicating the number of years of schooling the respondent plans to complete.

Enjoyment of Danger

- 0 No (respondent does not enjoy danger)
1 Yes (respondent does enjoy danger)

Church Attendance

A continuous variable indicating the number of times the respondent attended church in the four weeks prior to the interview.

Does the Respondent Smoke Cigarettes?

- 0 Yes (respondent does smoke cigarettes)
1 No (respondent does not smoke cigarettes)

Frequency of Cigarette Smoking

- 0 Does not smoke.
1 Smokes less than 1 cigarette per day.
2 Smokes one cigarette per day.
3 Smokes two cigarettes per day.
4 Smokes three cigarettes per day.
5 Smokes four cigarettes per day.
6 Smokes five cigarettes per day.
:
:
40 Smokes 39 cigarettes per day.

Age when Respondent BeganSmoking Cigarettes

A continuous variable measured in years of age, indicating the respondent's age when cigarette smoking was initiated.

Does the Respondent Take Chances?

- 0 No (respondent does not take chances)
1 Yes (respondent does take chances)

Age

Respondent's age in years, ranging from 15- to 19-years-old.

Race

- 0 Black
1 Nonblack

Religious Affiliation

(Coded as Dummy Variables)

D1

- 0 Catholic, Protestant, and no religion.
1 Fundamentalist

D2

- 0 Fundamentalist, Protestant, and no religion
1 Catholic

D3

- 0 Fundamentalist, Catholic, and no religion.
1 Protestant

Age at Menarche

A continuous variable measured in years of age, indicating respondent's age at menarche.

Age at First Sexual Intercourse

A continuous variable measured in years of age, indicating respondent's age at first sexual intercourse.

Appendix B. Block Analysis with each Block

Entered Separately with the Controls

Because the block analysis presented earlier controlled more heavily with the addition of each successive block, an alternative analysis was conducted (see Table 4). Differences between this and the previous analysis are minimal, and are restricted to reduced significance of enjoyment of dangerous activities, and increased significance of the age at which cigarette smoking was initiated. Other than these two changes in significance, and minor changes in R^2 , little difference resulted from the two analyses. It can, therefore, be assumed that the increasing control of the previous block analysis makes little difference in the model as a whole.

Table 4.

Block Analysis of Each Independent Variable BlockEntered Separately With the Control Block.

Variable numbers	Model 1	Model 2	Model 3	Model 4	Model 5
<u>Control variables</u>					
16	.3556***	.3627***	.3507***	.3205***	.3196***
17	.1651***	.1160**	.1492***	.1285**	.2225***
D1	.0404	.0503	.0360	-.0030	.0114
D2	.1305*	.1219*	.1226*	.0818	.1252*
D3	.0767	.0564	.0715	.0384	.0483
19	.1587***	.1601***	.1560***	.1723***	.1425***
<u>Socio-economic variables</u>					
1		.1594***			
2		.0422			
<u>Social-situation variables</u>					
3					
W1			.0610		
W2			-.0049		
4			.0238		
<u>Individual values variables</u>					
5				.0911	
6				-.1039*	
7				.2160***	
8				.0520	
9				-.0573	
<u>Individual behavior variables</u>					
10					.0471
11					.0836
12					-.1096*
13					-.0917
14					-.0565
R ² =	21.6	24.2	22.0	26.0	26.2
n =	593	593	788	585	527

* p < .05.

** p < .01.

*** p < .001.