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PREGNANCY AMONG YOUNG, UNMARRIED WOMEN

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Arthur E. Gravatt

Among sexually-active, young women, the motivation to contracept seems to be more of an issue than the technology. This study explored two factors associated with the motivation to contracept; specifically, the relationship of sex role orientation (SRO), and locus of control (LOC), to the contraceptive use patterns of 77 unmarried, undergraduate women. All subjects were sexually-active, 18-20 years old, never-married, and full-time students attending a land grant university in the Pacific Northwest.

The short form of the Attitude Toward Women Scale (AWS), and the adult form of the Nowicki-Strickland Internal-External Control Scale (ANS-IE) were used to measure subjects' SRO and LOC, respectively. The Pregnancy Protection Index (PPI), devised by the author, was used to measure likelihood of pregnancy. In addition to demographic data, data regarding dating behavior, sexual activities, intercourse

experience, contraceptive history, and biographical history were obtained.

Results revealed subjects with more nontraditional SRO's: 1) used the birth control pill; 2) used a "reliable" contraceptive method (defined as birth control pills, IUD, diaphragm, condom and foam, or condom) at the most recent intercourse; and, 3) engaged in intercourse, significantly more than did less nontraditional women. Though not statistically significant, a positive trend between nontraditional SRO and more frequent contraceptive use emerged. However, there was no significant difference in the PPI scores of women in these groups; or in the percentage who used, or did not use, contraceptives at the first intercourse, or in the last year. Subjects with more internal LOC were found to have a higher frequency of contraceptive use. Though not statistically significant, a trend between internal LOC and a higher PPI score was identified. High internals were more likely to have used some birth control method in the last year than were low internals. No distinction between high and low internals was uncovered regarding frequency of intercourse, types of contraceptive methods used, or use of "reliable" vs. "unreliable" methods. Regression analyses indicated that while LOC accounted for more of the variance in the PPI than did SRO, the combined effect of these two parameters was not significantly associated with a greater likelihood of avoiding pregnancy.

Limitations of this study and suggestions for future research were discussed.

Sex Role Orientation, Locus of Control,  
and Likelihood of Pregnancy Among  
Young, Unmarried Women

by

Jacqueline Lee Moore

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Typed by Lee Foster for Jacqueline Lee Moore

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SEX ROLE ORIENTATION, LOCUS OF CONTROL, AND LIKELIHOOD OF  
PREGNANCY AMONG YOUNG, UNMARRIED WOMEN

CHAPTER I

INTRODUCTION

In the realm of contraceptive use among adolescents today, the motivation to contracept seems to be more of an issue than the technology. Over the last decade contraceptives have become readily available, and yet many young women still find themselves faced with "unplanned" pregnancies. The fact that most of these "unplanned" pregnancies result not from technological failures, but from haphazard and ineffectual contraceptive practices has been well documented (Sorenson, 1973; Zelnik & Kantner, 1973, 1978; Meyerowitz & Malev, 1973). Furthermore, improving sexual and contraceptive knowledge has positively influenced the contraceptive behaviors of many young people, but failed to affect the contraceptive practices of many others (Fujita, Wagner, & Pion, 1971; DelCampo, Sporakowski, & DelCampo, 1976; Monsour & Stewart, 1973).

The purpose of this study is to explore factors believed to be associated with contraceptive use among unmarried, sexually-active, young women. Particular emphasis will be on factors which seem to be related to the motivation to contracept.

One factor which may influence a woman's motivation to use contraceptives is her sex role orientation. In particular, women oriented toward traditional sex roles are more likely than their less traditional peers to: believe a woman's place is in the home,

emphasize the importance of marriage and motherhood in their future plans, have lower educational and career aspirations, believe men are more competent than women, believe women should be dependent on men, and believe women are warmer, more understanding, and more nurturant than men. Nontraditional women are more likely to have higher educational and occupational goals, be willing to postpone marriage and childbearing, desire and have smaller families, minimize sex role differentiation, have flexible attitudes toward the female's role, and advocate the equality of men and women (Arnott, 1973).

Women, both traditional and nontraditional, are likely to behave in ways that reflect these sex role beliefs. Because traditional sex role prescriptions for women have centered on the wife-mother role, adherence to these norms may foster high fertility desires and expectations. It may be speculated that these desires negatively influence contraceptive behaviors and are therefore associated with ineffective contraceptive use. Furthermore, women who conform to the "traditional" passive, dependent, and submissive role may feel less comfortable initiating or discussing contraception with their partners. Because traditional women tend to put others' needs and desires ahead of their own, they may avoid using messy or disruptive contraceptives in order not to disturb their partner's pleasure (Fox, 1977).

In contrast, a nontraditional sex role attitude would be more likely to foster contraceptive use, as contraceptives would be instrumental in translating one's beliefs about women and women's roles into reality (Fox, 1977). Because contraception tends to be

seen, by nontraditional women, as a joint responsibility of both partners, these women may feel more comfortable in initiating or discussing contraception with their partners, may place their own contraceptive security above their partner's pleasure, and may feel more capable of taking responsibility for themselves (Fox, 1977). Nontraditional women may perceive greater costs of contraceptive failure, so they may be more motivated to be successful contraceptors.

Several studies have, in fact, established a relationship between sex role orientation and contraceptive use (Clarkson, Vogel, Broverman, & Broverman, 1970; Scanzoni, 1975; Eagly & Anderson, 1974; Goldberg, 1974, 1975; Tobin, 1976). Traditional women have been found to have more negative birth control attitudes and less effective contraceptive practices than do nontraditional women.

While much research has been done in the area of sex role orientation and in the area of contraceptive use, several shortcomings seem evident. First, most of the research in these areas has focused on married rather than unmarried people, and on attitudinal rather than behavioral dimensions. Furthermore, the studies which have dealt with contraceptive use among unmarried people have usually focused on special client groups such as adolescent mothers or women seeking abortion services.

A second factor which may influence a woman's motivation to use contraceptives is her locus of control or feeling of personal powerlessness. Nowicki and Strickland (1973) describe subjects with external control as those who typically perceive events as the result of luck, fate, chance; as controlled by omnipotent others; or as too complex to

be predicted. Subjects with internal control, on the other hand, typically believe that their own behavior can and does influence events and the outcome of events in their own lives.

Several characteristics of locus of control - the ability to plan ahead, to project oneself into the future, and to take responsibility for the direction of one's life - seem to be related to contraceptive use. Specifically, women with an external locus of control may not take active or effective contraceptive responsibility for themselves because they believe conception constitutes an "occurrence" or chance happening (Bauman & Udry, 1972; MacDonald, 1970). Women with an internal locus of control, however, believe they do have some control over events in their lives. They may, however, be more responsible for their sexual behavior, better able to plan ahead, more active seekers of sexual and contraception information, and more effective contraceptors.

Finally, this study examines the combined effects of sex role orientation and locus of control as motivating factors for the use of contraceptives among young, unmarried women. Exercising control over events in one's life seems to run counter to a variety of traditionally feminine attributes including: lack of aggressiveness and independence, influenceability, submissiveness, passivity, and lack of leadership (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972) Generally, it can be hypothesized that an internal locus of control will appear more frequently in women with nontraditional sex role orientations, and that an external locus of control will be more prevalent among those who espouse traditional sex role orientations. Although these variables

tend to appear together it may be speculated that the highest level of contraceptive use in women will be found among those classified as both nontraditional in sex role orientation and internal in locus of control. Therefore the combined influence of sex role orientation and of locus of control on contraceptive use is investigated in this study.

### Purpose and Hypotheses

In this research project, the four primary objectives were:

1) to describe the sexual and contraceptive behavior of young, unmarried, college women, 2) to explore the relationship between the contraceptive use patterns of these women and their sex role orientation, 3) to explore the relationship between the contraceptive use patterns of these women and their locus of control, and 4) to examine contraceptive use as a function of both their sex role orientation and locus of control.

It is hypothesized that nontraditional women are more likely to be protected from pregnancy; that is, they are more likely to 1) use contraceptives, 2) use "effective" contraceptive methods, and 3) use contraceptives regularly, than are traditional women. Similarly women with an internal locus of control are hypothesized to be better protected from pregnancy than are women with an external locus of control. Women with an internal locus of control are expected to 1) use contraceptives, 2) use "effective" contraceptive methods, and 3) use contraceptives regularly. Furthermore, it is believed that contraceptive use is facilitated by a combination of nontraditional sex role attitudes and an internal locus of control, and that the combination of these

variables is more strongly associated with contraceptive use than is either variable alone.

### Justification of Study

Pregnancy has a profound effect on the course of many women's lives - regardless of its outcome. But "unplanned" pregnancies among unmarried adolescent women may be especially traumatic - in terms of both the personal and societal problems it may cause. Despite the increased availability of contraceptives and increased sexual and contraceptive knowledge, unplanned pregnancies (and the birth rate) among adolescents are continuing to increase. While birth rates are declining for most women in the U.S., the birth rate among older adolescents has been declining more slowly than adult birth rates, and the birth rate among younger adolescents is actually increasing. About ten percent of adolescent girls in the U.S. today get pregnant each year, and about six percent give birth (McKenry, Walters, & Johnson, 1979). In the last decade, out-of-wedlock births have increased by 33% among 18-19 year olds, and by 75% among younger adolescents (McKenry et al., 1979). As a result a larger proportion of U.S. births today occur to adolescent mothers than was true in the past.

The various outcomes of adolescent pregnancy (birth, abortion, and adoption) have been studied in depth. The problems associated with unintended parenthood among young, unmarried women (illegitimacy, forced marriage, early divorce, single parenthood, child abuse, interrupted education, lost occupational opportunities, and financial

problems) have also been well documented. This research project addresses the more direct cause of adolescent pregnancy - sexual intercourse and ineffectual contraceptive use. Specifically this project attempts to identify factors related to the motivation to use contraceptive methods.

## CHAPTER II

## REVIEW OF THE LITERATURE

Theoretical Framework

This research project will draw heavily upon a utility model of fertility control as described and tested by Scanzoni (1975). The utility model was first proposed by Easterlin (1969) and Hawthorn (1970). "Utility" as described by Hawthorn, refers to the tendency of persons or groups (couples) to maximize rewards and benefits, and to minimize costs and punishments; these rewards and costs are often unconscious and are not necessarily rational. Basically, their approach presumes that fertility control is dependent upon perceptions of available resources, rewards, and costs.

Scanzoni (1975) extended this model to link adult marital fertility with sex role norms. Based on previous research studies (Hoffman & Wyatt, 1960; Davis, 1967; Blake, 1965; Goldberg, 1960), Scanzoni hypothesized that sex role norms may prescribe both traditional and alternative sources of rewards for women. Children may be viewed as rewards for parents, especially mothers, provided they are not too costly in terms of money or in terms of other potential rewards. Women with a traditional sex role orientation receive their primary rewards from bearing children, and from caring for children, husband, and home (Scanzoni, 1972). Children are often the exclusive outlet for feminine creativity and achievement (Blake, 1965). When other potential rewards seem equally or more attractive than having children,

nontraditional sex role norms may be prescribed. Nontraditional women may receive equal or greater rewards (in terms of fulfillment, prestige, or material benefits) from occupational achievements or from pursuing their own interests than from rearing children. While nontraditional women do not necessarily reject the familiar roles of wife and mother, they do expect to postpone marriage and bear fewer children than more traditional women (Tangri, 1972). Research done in the U.S. and other countries (Freedman & Coombs, 1966; Haas, 1972; Stycos & Weller, 1967) which reveals an inverse relationship between wife employment and fertility supports this utility model.

Scanzoni supports the findings of others (Ryder & Westoff, 1971; Whelpton, Campbell, & Patterson, 1966) that unintended conception is more a matter of motivation than technology. Women who associate greater costs with conception are more likely to contracept. Scanzoni's research (1975) confirmed that persons holding more egalitarian (non-traditional) sex role norms do desire smaller families and do act to control fertility and limit their family size.

A review of literature failed to locate any studies employing the utility model to explain the relationship of locus of control and contraceptive use. However, the author believes that locus of control may indeed prescribe rewards and costs related to fertility control.

Women with an internal locus of control typically believe that their own behavior can and does influence events and the outcome of events in their own lives. Due to this belief they may find it personally rewarding to be in control of events, and to behave in ways that ensure meeting their future goals. In the area of contraception, this

internal orientation would encourage a woman to plan ahead, to project herself into the future, and to take responsibility for her actions. This orientation may also encourage a woman to seek out contraceptive information and devices in order to realize her future plans. Furthermore a woman with an internal locus of control may perceive an unplanned or untimely pregnancy (especially one where contraceptives were not used) as a negative reflection on her ego and self-image. So failure to contracept may be perceived as a cost in terms of decreased self-esteem. When people believe they can and should be responsible for themselves, failure to meet these self-expectations may mean loss of self-esteem.

Women with an external locus of control typically perceive events as the result of luck, fate, chance, destiny, or as too complex to be predicted. These women may find it personally rewarding to 'just let things happen.' In terms of contraceptive use this may mean that seeking out contraceptive information and devices, and taking the time and effort to use these devices, is perceived as a cost. It is a cost to try to prevent conception and fail; it is also a cost to exert extra effort when conception is perceived as a matter of destiny, a chance happening, or an unmanageable event. Furthermore, because life events are perceived as beyond their control, women with an external locus of control may have less trouble accepting an "unplanned" pregnancy as they don't perceive themselves as responsible for the event... it was just 'meant to be.'

Research linking external locus of control with less efficient contraceptive behaviors (MacDonald, 1970; Bauman & Udry, 1972; Groat &

Neal, 1967, 1973, 1975), with illegitimate adolescent pregnancy (Meyerowitz & Malev, 1973), and with higher marital fertility (Groat & Neal, 1967, 1973, 1975) supports this utility model of fertility control.

To summarize, the utility model of fertility assumes that sex role norms and locus of control have an effect on family planning and conception. This effect is related to the perceived benefits and costs of failure to control family size. It is hypothesized that women who espouse nontraditional sex role norms behave in ways that limit their family size so that they may pursue their own occupational interests. A corollary of the utility model is that nontraditional women are more likely to contracept than traditional women. It is also hypothesized that women with an internal locus of control will act to avoid unplanned pregnancies, thereby putting into action their belief in their own ability to control the outcome of events in their lives. Also it is hypothesized that women with an internal locus of control are more likely to contracept than women with an external locus of control.

#### Sexual Activity

Based on the studies of Kinsey, Pomeroy, Martin, & Gebhard (1953), Sorenson (1973), and Vener & Stewart (1974), two major trends can be identified related to sexual activity in young people. First, more girls are becoming sexually active as adolescents; and secondly, sexually experienced adolescents of both sexes are engaging in sexual activity at earlier ages. Kantner & Zelnik (1971), in their national survey of 4611 young women 15-19 years old, found that 28% of never-

married young women reported having sexual intercourse. The proportion increased with age, from 14% at age 15, to 46% at age 19.

Studies of the sexual behavior of undergraduate college women have shown similar trends. In the 1940's, Kinsey et al. (1953) found that 20% of a sample of 19-20 year old female students had had sexual intercourse. By the 1960's and early 1970's researchers were reporting that 39% - 45% of undergraduate women had experienced intercourse (Luckey & Nass, 1969; Kaats & Davis, 1970; Bell & Chaskes, 1970). Studies conducted in the 1970's generally report even higher percentages of nonvirgin female students, percentages ranging from 30.5% (Fujita et al., 1971) to 66% (Maxwell, Sack, Frary, & Keller, 1977). Furthermore, Guttmacher (1969) has estimated that approximately 70% of all single college students will have engaged in sexual intercourse by their senior year in college. Specifically, the percentages of nonvirgin, unmarried, undergraduate women reported by various authors (in ascending order) are as follows: Fujita et al. (1971) - 30.5%, based on a sample of 283 women; Bauman (1971) - 43%, based on a sample of 100 women; Hornick, Doran, & Crawford (1979) - 45%, based on a sample of 425 women; Vincent & Stelling (1973) - 48.8%, based on a sample of 170 women; Fox (1977) - 59%, based on a sample of 425 women (6% of his sample was married); Oswalt (1974) - 65%, based on a sample of 180 women; Needle (1975) - 65%, based on a sample of 848 women; and Maxwell et al. (1977) - 66%, based on a sample of 121 single women (only 6% of his sample were freshmen women).

Several authors indicate that as age and class standing increase, the percentage of nonvirgin undergraduate women also increases.

Needle (1975) found the percentage of sexually experienced (nonvirgin) women ranged from a low of 40% among freshmen, to a high of 71% among seniors. Oswalt (1974) found that 42% of the freshmen, 55% of the sophomore, 77% of the junior, and 87% of the senior women had experienced premarital intercourse.

### Contraceptive Use

#### Factors Influencing Contraceptive Use

The studies of Sorenson (1973), and Zelnik & Kantner (1978) support the frequently cited finding that the majority of young women do not contracept during their first intercourse and some delay contraceptive use until after they have experienced pregnancy. The female's age at first intercourse (Cvetkovich, Grote, Lieberman, & Miller, 1978) and the occurrence of intercourse in a stable relationship (Furstenberg, 1971, 1976; Sorenson, 1973; Fujita et al., 1971; Hornick et al., 1979) both increase the likelihood of regular and effective contraception. Young women 16 and older at first intercourse are better contraceptors than those 15 and younger (Cvetkovich et al., 1978).

Other factors which have been shown to positively influence contraceptive use by young women include knowledge of reproduction and conception, knowledge of contraceptive methods, and perceived availability of contraception. Much research has focused on these variables (Zelnik & Kantner, 1977; Shah, Zelnik & Kantner, 1975; Presser, 1977; Sorenson, 1973; Moore & Caldwell, 1977). Increasing sexual and contraceptive knowledge and making contraceptives more available does seem to increase contraceptive practice in many young people. However,

this increased knowledge does not explain the nonuse of contraceptives among those who are already sexually and contraceptively knowledgeable and who do perceive contraceptives as being available. Fujita et al., (1971) studied the contraceptive behavior of 446 single college students by first administering a questionnaire on basic sexual physiology and contraception, and then conducting personal interviews. Of those involved in a sexual relationship, only 46% of the males and 54% of the females used some form of contraception on every occasion of their relationship in the last year, despite the fact that they were sexually and contraceptively knowledgeable and contraceptives were perceived as readily available. Fujita indicates that motivation seems to be the more complex problem and that research in this area is needed. Similar results were found by Monsour & Stewart (1973). In a study of twenty single college women seeking abortions, they found that over 70% were not using any birth control method, despite knowledge and availability of contraceptive services. Again it appears that motivation is the more complex problem.

Living independently of parents (Kantner & Zelnik, 1971); positive self-esteem (Hornick et al., 1979); higher educational level (Kantner & Zelnik, 1971); having scholastic and vocational interests (Goldsmith, 1972); and perception of one's own fecundity (Kantner & Zelnik, 1971; Russ et al., 1975) have also been associated with more effective contraceptive use in young women. Finally, socioeconomic status, race, parents' educational levels, and church attendance also affect contraceptive use slightly.

### Use vs. Nonuse of Contraceptives

After comparing the findings of their 1971 nationwide sample of young, unmarried women age 15-19, with their 1976 sample, Zelnik & Kantner (1978) claim that the overall use of contraceptives by young women is on the increase. However, use is still described as episodic and inconsistent, with less than 20% claiming that they "always" use some method of preventing pregnancy during intercourse. While only about 15% of the sexually-active women claimed they have never used any method of birth control, more than 50% reported that their last sexual act was unprotected.

The available data on contraceptive use among college samples indicates a fairly high proportion of nonuse. With regard to contraceptive use at first intercourse, Maxwell et al. (1977) report 20% of the women used no birth control, while Fox (1977) reports that 51% had no protection. The percentage of women using either no contraceptives or "unreliable" methods (defined by the authors as withdrawal, rhythm, and douche) were reported by Needle (1975) as 61%, by Bauman (1971) as 64%, and by Maxwell (1977) as 76%. Fox (1977) reported that 90% or more of the women in his study were not "effectively" protected at first intercourse.

Several authors have investigated the general contraceptive use patterns of college women (usually defined as contraceptive use in the last year). Oswalt (1974) found that 7% of a sample of unmarried, sexually-active, undergraduate students never use birth control during intercourse. Fujita et al. (1971) studied contraceptive use rates per

dating relationship and found that 23% of the females in a given relationship did not use contraceptives consistently. Of those dating "steadily", 24% were unprotected; of those in more serious steady relationships, 23% were unprotected. Studying a similar population, Hornick (1979) reported the proportion of nonuse to be 28%. In addition he found that 62% of those in non-serious dating relationships were unprotected, while only 20% of those in serious dating relationships were unprotected. Finally, MacDonald (1970) and Lundy (1972) report the proportion of nonuse of contraceptives among undergraduate women to be 50% and 55% respectively.

Contraceptive use among female coeds at the most recent intercourse experience was investigated by Kantner & Zelnik (1973), Fox (1977), and Maxwell et al. (1977). Of the small number of college students included in the nationwide Kantner & Zelnik study, 20% of those living in dormitories report nonuse of contraceptives at their last intercourse. Fox found that 22% used no method, while Maxwell reports 21% used no method or an unreliable method at their most recent intercourse.

#### Types of Contraceptive Methods Used

A table summarizing the types of contraceptive methods used by undergraduate women: 1) at first intercourse, 2) in the last year, 3) ever, and 4) at the most recent intercourse experience may be found in Table 13 on page 62. The results of the present study as well as those of various authors are presented in that table.

### Frequency of Contraceptive Use

Maxwell et al. (1979) and Oswalt (1974) investigated the frequency of contraceptive use among college women. Maxwell reports that 61% use birth control "all of the time", 20% use birth control "most of the time", 5% use birth control "some of the time", 7% use birth control "not much of the time", and 4% "never" use birth control. Oswalt found only 39% are protected "all of the time", while 17% are unprotected "1-4% of the time", 12% are unprotected "5-9% of the time", 11% are unprotected "10-14% of the time", 13% are unprotected "15-99% of the time", and 7% are unprotected "all of the time".

### Frequency of Intercourse

Of the women sampled by Vincent & Stelling (1973), 22.9% had intercourse one or more times per week (and were classified as "very active"), 14.7% had intercourse one or two times per month (and were classified as "moderately active", and 11.2% had intercourse one or two times per semester (and were classified as "seldom active"). Fifty-one percent of the women were virgins.

### Reasons for Nonuse of Contraceptives

The three most frequently cited reasons for nonuse of contraceptives (in descending frequency) are: 1) didn't expect intercourse to occur, 2) intercourse should be spontaneous, and 3) intercourse occurred in a safe part of the menstrual cycle. With regard to first intercourse experiences, Maxwell et al. (1977) report 72% of their subjects

cited reason one, 31% cited reason two, and 24% cited reason three. Similarly, 42.8% of Needle's subjects (1975) cited reason one, while 27.5% cited reason two, and 27.5% cited reason three. Bauman (1971) also found these same three reasons for nonuse of contraceptives. However in his study, while reason one was cited the most frequently, reason three was cited more often than reason two.

In contrast to the trend just cited, Oswalt (1974) reports the majority (38%) of his subjects believed no method was available, 12% thought it was a safe period in the cycle, 8% were experiencing their first intercourse, and 8% failed to use contraceptives because intercourse was impulsive or spur of the moment.

#### Sex Role Orientation

Sex role orientation has been proposed as an important variable which may influence women's family size desires, educational and career aspirations, and contraceptive use patterns. Clarkson, Vogel, Broverman, and Rosenkrantz (1970) studied 96 Catholic mothers of male college students and reported smaller completed family size among wives with relatively masculine self-concepts. A positive relationship between nontraditional sex role norms and small family size was also found by Scanzoni (1975) in her study of wives age 19-30.

Turning now to expected or desired family size, McLaughlin (1974) found that high school women with nontraditional attitudes toward the female role, career plans, and awareness of the status differential between men and women expected to have smaller families than did more traditional subjects. In a study of family size desires among men

and women college students, Rice-Allgeier (1975) found that androgynous females desired fewer children than sex-typed females. Androgynous women also lived in larger communities, moved frequently, were raised by parents of higher occupational status, held higher educational aspirations, and placed more value on achieving competence at work than did sex-typed females. In a third study of family size desires, Eagly & Anderson (1974) found a consistent pattern linking sex role orientation of male and female college students to the number of children they desired. This study showed that sex role nonequivalence (traditional sex role orientation), opposition to women's liberation, low liberalism, high conservatism, and strong religiosity tend to be predictive of larger family size desires.

In the Eagly & Anderson (1974) study, a significant relationship emerged between women with nonequivalent (traditional) sex role attitudes and opposition to women's liberation, and anti-birth control attitudes. More equivalent (nontraditional) sex role attitudes were associated with favorable birth control attitudes. Goldberg (1974, 1975) has linked nontraditional sex role attitudes and behaviors among Turkish and Mexican women to contraceptive use. Finally, in a study of the conjugal role definitions and contraceptive practices of 433 married women age 14-45, Tobin (1976) found a relationship between conjugal role definitions and contraceptive practices, especially among those educated beyond high school. Subject's age and length of marriage acted as intervening variables and were controlled for.

### Locus of Control

Another variable which may influence young women's use of contraceptives is locus of control. In a study of 212 married and unmarried undergraduate women, MacDonald (1970) found that those with an internal locus of control were better contraceptors than those with an external locus of control. For the unmarried sample, MacDonald reported that 62% of the internals practiced some form of birth control, whereas only 37% of the externals did. In the married sample, 87% of the internals and 63% of the externals practiced some form of birth control. (Data for the married subjects did not reach statistical significance.) Meyerowitz & Malev (1973) and Segal & DuCette (1973) found that their samples of illegitimately pregnant adolescents were characterized by an external rather than an internal locus of control. In a study of white, Protestant mothers, Groat & Neal (1967, 1973, 1975) found a relationship between fertility, contraceptive use, and measures of alienation (one of which was "powerfulness"). They concluded that alienation was associated with higher fertility, a larger number of children, earlier marriage age, and a shorter time interval between marriage and the birth of children, for subjects in their sample. Finally, Bauman & Udry (1972) in studying the contraceptive use in urban Negro males, found a strong association between powerlessness and lack of contraceptive regularity. Only 10% of the men scoring high on powerlessness (externals) use contraceptives at each intercourse, while 88% of the men scoring low on powerlessness (internals) always use contraceptives. Powerlessness was found to be correlated more strongly with contraceptive regularity than

was any other variable in the nine variable correlational matrix.

#### Sex Role Orientation and Locus of Control

Fox (1977) studied the relationship of both sex role attitudes and locus of control on contraceptive behavior in college men and women. Based on their response to a five-index sex role questionnaire and the Rotter Scale of Internal-External Locus of Control (Rotter, 1966) subjects were categorized as belonging to one of four groups: traditional sex role orientation with internal control, traditional sex role orientation with external control, nontraditional sex role orientation with internal control, and nontraditional sex role orientation with external control. Although no relationship was found between these variables for either sex at first intercourse, when the most recent intercourse experience was considered the highest level of contraceptive use in women was found among those classified as nontraditional with an internal locus of control.

## CHAPTER III

### METHODOLOGY

#### Subjects

The subjects for this study consisted of a randomly selected group of 77 undergraduate women attending a land-grant university in the Pacific Northwest. All women were 18-20 years old, and never-married. Each had experienced sexual intercourse at least once. Respondents were full-time students who were living in university housing, spring term, 1980.

#### Measures

Four questionnaires were used in this study: a short version of the Attitude Toward Women Scale (Spence, J.T.; Helmreich, R.; & Stapp, J., 1973), the Nowicki-Strickland Internal-External Control Scale (Nowicki & Strickland, 1973), the Individual Behavior Questionnaire, and a biographical questionnaire. The Individual Behavior Questionnaire and the biographical questionnaire, though based on instruments used by other authors, were developed by the investigator. These four measures are presented in Appendices A, B, C, and D.

In order to measure respondents' likelihood of pregnancy, one further measure was utilized - the Pregnancy Protection Index. This measure was developed by the investigator in order to derive a continuous scale for measuring the dependent variable, contraceptive use.

### The Attitude Toward Women Scale

A short version of the Attitude Toward Women Scale (AWS), developed by Spence et al.(1973), was used to assess the subject's sex role orientation. This scale consists of 25 declarative statements about the rights and roles of women in the following six categories:

- 1) vocational, educational, and intellectual roles (N = 10);
- 2) freedom and independence (N = 3);
- 3) dating, courtship, and etiquette (N = 2);
- 4) drinking, swearing, and dirty jokes (N = 3);
- 5) sexual behavior (N = 1);
- 6) marital relationships and obligations (N = 6).

In the original 55-item AWS (Spence & Helmreich, 1972), category five, sexual behavior, was represented by seven questions. Only one of these was retained in the short version of the AWS. In light of this research study's focus on sexual behavior and contraceptive use it seemed appropriate to supplement the short version of the AWS with the remaining six questions on sexual behavior from the original 55-item AWS scale. It was hoped this seven-item sexual behavior subscale (SBS) would serve as a validity check and would provide pertinent information for independent analysis.

To summarize, a 31-item questionnaire was utilized to assess a respondent's sex role orientation. Twenty-five of these items made up the short version of the AWS. The remaining six items made up the questions from the sexual behavior category of the original scale which were not included in the short version. The short AWS was presented

in its entirety; it was followed by the six remaining sexual behavior items.

Respondents were asked to react to each of the 31 statements using a 4 point Likert-type scale. Response alternatives were agree strongly, agree mildly, disagree mildly, and disagree strongly. For each statement, the alternative circled was given a score from zero to three, with zero representing the most traditional response and three the most nontraditional response. Reverse scoring was necessary for 12 of the 25 items in the short AWS, and for 4 of the 6 items in the SBS of the original AWS. The subject's sex role orientation score was the sum of individual item scores.

These sex role orientation scores were analyzed in two ways: using only the 25-item AWS score, and using only the 7-item SBS of the original 55-item AWS scale. In the first case, the range of possible total scale scores was from 0 (traditional responses for all 25 statements) to 75 (nontraditional responses for all 25 statements). Using the SBS only, total scale scores may range from 0 (traditional responses on all 7 items) to 21 (nontraditional responses on all 7 items). Thus, from this AWS scale (and the SBS) a continuum of sex role orientation scores may emerge, with the higher scores representing the more nontraditional viewpoint.

Validity and reliability estimates for the 55-item AWS were established at the time of that scale's development. Students enrolled in introductory psychology classes at the University of Texas, at Austin, completed the questionnaire fall semester, 1971 (N = 420 men, 529 women), and spring semester, 1972 (N = 293 men, 239 women).

Descriptive data, in terms of frequency distributions, means, and variability were analyzed and then, as a measure of construct validity, principal factor analysis with Varimax rotation was employed. For women, two major factors emerged; one factor primarily concerned with equality of opportunity for women, and a large global factor describing the attributes of the "conventional" woman in her relationship to men.

In order to obtain comparable data from an older group, the questionnaire was also administered to parents of the University of Texas students. Sixty-five percent ( $N = 292$ ) of the parents originally sent the AWS responded with usable questionnaires. This data was analyzed as above. Three major factors emerged from factor analysis of the mothers' data, and four from analysis of the fathers' data. Comparisons of student-parent data may be found elsewhere (Spence & Helmreich, 1972).

Finally, 267 male and 343 female students were given both the AWS and the California Personality Inventory Femininity Scale (Gough, 1969). The Pearson  $r$  between the two scales was .07 for males and -.05 for females. Since neither coefficient is significantly different from zero, the scales do not measure the same parameter which gives evidence for construct validity.

The 25-item form of the AWS was developed in 1973 (Spence et al., 1973). This was accomplished by administering the 55-item AWS to 527 students ( $N = 286$  male, 241 female) enrolled in introductory psychology courses at the University of Texas. Using item analysis, 25 items, which maximally discriminated responses for both sexes, were identified for the short form. Reliability of equivalence was established by getting correlations of .97 between scores on the 25-item scale and the

55-item scale for both male and female students. When these scales were administered to 524 of these students' parents (N = 232 male, 292 female), correlations of .96 were obtained. The 25-item scale was also factor analyzed using a principal axis rotation. It was found to be essentially unifactorial, indicating its construct validity. The first unrotated factor accounted for 67.7% of the variance for females, and 69.2% of the variance for males.

#### The Nowicki-Strickland Internal-External Control Scale

To assess the subject's locus of control, the adult form of the Nowicki-Strickland Internal-External Control Scale (ANS-IE) was employed. Questions for this scale were based largely on items from the Nowicki-Strickland Internal-External Control Scale for Children (Nowicki & Strickland, 1973). They are written at the fifth grade reading level.

The ANS-IE scale, which uses a forced choice format, consists of forty questions to which the respondent must answer either yes or no. External replies were scored "0", while internal replies were scored "1". Since the question is stated in the internal direction in some items (N = 15) and in the external direction in other items (N = 25), the alternative given a score of "1" varies from item to item. Total scores may range from 0-40, with lower scores indicating an external locus of control, and higher scores indicating an internal locus of control.

Twelve separate studies involving 766 subjects suggest the reliability of the scale. This data produced split-half reliability results ranging from .74 to .86, N = 158; and test-retest reliability over a

six week period of  $r = .83$ ,  $N = 48$  (Nowicki & Duke, 1974). Construct validity of the ANS-IE was established by identifying significant positive correlations between this scale and the Rotter (at the .01 and .05 level of significance), the Eysenck Neuroticism Scale (at the .05 level of significance), and the Taylor Manifest Anxiety Scale (at the .01 and .05 level of significance). Additional studies with the Taylor Manifest Anxiety Scale reached the .10 level of significance for males and .05 level of significance for females.

#### The Individual Behavior Questionnaire

Questions on the Individual Behavior Questionnaire were designed to gather specific descriptive data related to subject's behavior in three areas:

- 1) dating and sexual behavior,
- 2) intercourse experience,
- 3) contraceptive history.

The specific items in the questionnaire were based on previous studies exploring these general topics.

In relation to subject's dating and sexual behavior, the following information was sought: age at menarche, age at first date, current dating status, number of people dated in the last year, sexual activities ever engaged in, and ease of communication with parents about sex.

With regard to intercourse experience, subjects were asked if they had ever engaged in sexual intercourse. Those who indicated they had (sexually active subjects) were then asked to respond to questions concerning: the total number of times intercourse had occurred, their age at first intercourse, reasons for having intercourse, the number of

sexual partners during the last year, the frequency of intercourse in the last year, their relationship with their sexual partner the first time they had intercourse, their relationship with their sexual partner(s) in the last year, the level of sexual enjoyment, and their experience(s) with pregnancy.

The contraceptive history portion of this questionnaire asked subjects to indicate: 1) if any method of preventing pregnancy had ever been used; 2) which method(s) had been used: (a) ever, (b) at first intercourse, (c) in the last year, and (d) at the most recent intercourse experience; 3) how frequently contraceptives were used; 4) if unprotected intercourse had ever occurred; and 5) reasons for nonuse of contraceptives (if unprotected intercourse had ever occurred).

#### The Biographical Questionnaire

Information sought on the biographical questionnaire was designed to provide general background data. To facilitate selection of a homogeneous sample, questions regarding subject's age, marital status, class rank, and current living situation were asked. Responses to these questions were used to select the subject pool.

Subjects were also asked questions regarding: nationality; racial identity; the number of siblings they have; their ordinal position; religiosity; the size of the city/town in which they were raised; their parents' occupations; and their contact with family since coming to school. These factors were chosen from those identified in the literature as being most likely to relate to the dependent variable, contraceptive use.

In addition the following background variables were collected: mother's employment history; subject's educational expectations; subject's marital and childbearing plans; subject's career plans; subject's expectations for their lives when they are their parent's age; and subject's rating and ranking of the following five items in terms of importance to them: 1) a fulfilling career, 2) having or raising children, 3) a fulfilling relationship with a man, 4) marriage, and 5) both a career and marriage. A review of the literature indicates these items may be related not only to one or both of the independent variables, sex role orientation and locus of control, but also to the dependent variable, contraceptive use.

#### The Pregnancy Protection Index

The Pregnancy Protection Index (PPI) was developed by the author to create a continuous scale for measuring respondents' likelihood of pregnancy. This measure indicates how protected an individual is from pregnancy based on: 1) how frequently a contraceptive method is used, 2) the type of contraceptive method(s) used and its effectiveness, and 3) how frequently the subject has intercourse.

As an intermediate step in deriving the PPI, the statistical effectiveness of each birth control method in preventing pregnancy, for each independent intercourse experience, was first derived. This computation was called the LONGPI (likelihood of not getting pregnant per intercourse) score for each birth control method.

## LONGPI Score - Likelihood of Not Getting Pregnant Per Intercourse Experience

Based on probability over a period of time, each intercourse experience has associated with it a certain statistical possibility of pregnancy. If we look at the data available on the "average" woman with regard to: 1) effectiveness of birth control methods in preventing pregnancy, and 2) frequency of intercourse, we can derive a number indicating the likelihood of not getting pregnant, per intercourse experience, for various birth control methods, for this "average" woman. This number will be called the LONGPI score (likelihood of not getting pregnant per intercourse). So,

$$\text{LONGPI}_i^Y = \text{ME}_i, \text{ where}$$

$\text{LONGPI}_i$  = the likelihood of not getting pregnant per intercourse experience for birth control method  $i$ ;

$Y$  = the "average" number of intercourse experiences per year for the "average" woman; and

$\text{ME}_i$  = the actual user effectiveness (or the likelihood of not getting pregnant) of birth control method  $i$  over a 1 year period for the "average" woman.

This formula is based on a large, statistical sample of women and is averaged over a year. It operates on the following general assumptions: 1) frequency of intercourse is related to the likelihood of pregnancy, 2) every intercourse experience using a given birth

control method, has associated with it the same probability of avoiding pregnancy.

As the formula indicates, the LONGPI score is geometric rather than linear. This can be explained by examining a basic formula of probability: if A and B are independent events, then  $P(A \text{ and } B) = P(A) P(B)$ . In this study the independent events of concern are intercourse experiences not resulting in pregnancy. The actual number of these independent events is the subject's frequency of intercourse (to be operationalized soon). The LONGPI score is actually the probability of not getting pregnant per intercourse experience, for each birth control method, in one year. So, for X independent events (intercourse experiences), using birth control method i,  $LONGPI_i$  must be multiplied by itself X times to arrive at the actual likelihood of avoiding pregnancy. For example, if a subject has five intercours<sub>e</sub>s per year using birth control method i each time, her probability of avoiding pregnancy is equal to:  $LONGPI_i \times LONGPI_i \times LONGPI_i \times LONGPI_i \times LONGPI_i$ , or  $LONGPI_i^5$ .

Given this basic understanding of probability, each parameter of the LONGPI formula can now be further described and operationalized.

### ME Score - Effectiveness of Birth Control Methods for the "Average"

#### Woman

The method effectiveness (ME) scores for each contraceptive method were based on effectiveness rates as reported in the ninth edition of Contraceptive Technology, 1978-79 (Hatcher, Stewart, Stewart, Guest, Stratton, & Wright, 1978).

User, rather than theoretical, rates were employed. User effectiveness rates take into account all users of a method - those who use the method carelessly, as well as those who use it without error. Theoretical effectiveness rates indicate the maximum effectiveness of a method when it is used perfectly.

The ME score to be used in this scale, based on user effectiveness rates, is actually a statistical average of the number of women, per hundred, per year, who use a particular birth control method and do not become pregnant using this method. Specifically, the user effectiveness rate (ME) for each contraceptive method is given in Table 1.

Table 1

## User Effectiveness Rates (ME) for each Contraceptive Method

Contraceptive Method	Failures/100 Women/Year	ME Score
Birth Control Pills	4 - 10	.90 - .96
IUD	5	.95
Condom and Foam	5	.95
Condom	10	.90
Diaphragm with spermicidal agent	17	.83
Withdrawal	20 - 25	.75 - .80
Rhythm	21	.79
Foam	22	.78
Douche	40	.60
Chance	90	.10

In the case of birth control methods where a range of effectiveness rates is given, the higher rate was used. Therefore, birth control pills were given an ME score of .96, and withdrawal was given an ME score of .80.

#### Frequency of Intercourse for the "Average" Woman - Y

The user effectiveness rates of the contraceptive methods, for the "average" woman imply an "average" number of intercourses per year (Y). This figure does not appear to be available from the studies establishing contraceptive method effectiveness rates. However, extrapolating from the study of Wilson (1975) on the frequency of intercourse among 1370 women age 21-60, and from the study of Hunt (1974) on the frequency of marital coitus among men and women, we can estimate that the "average" woman in the U.S. has intercourse approximately 100 times per year (about twice a week). So, in the LONGPI formula, Y will equal one hundred.

#### Calculation of LONGPI

We can calculate the LONGPI of various birth control methods in the following manner:

$$\text{LONGPI}_i^Y = \text{ME}_i \quad (1)$$

$$\text{Since } Y = 100, \text{ LONGPI}_i^{100} = \text{ME}_i \quad (2)$$

$$\text{Hence, LONGPI}_i = \text{ME}_i^{.01} \quad (3)$$

Using equation (3), the LONGPI for each birth control method has been calculated and is presented in Table 2.

Table 2  
Likelihood of Not Getting Pregnant Per Intercourse Experience  
(LONGPI Score) For Each Contraceptive Method

Contraceptive Method	$ME_i$	LONGPI Formula	LONGPI Score
Birth Control Pills	.96	$.96^{.01}$	.99959
IUD	.95	$.95^{.01}$	.99949
Condom and Foam	.95	$.95^{.01}$	.99949
Condom	.90	$.90^{.01}$	.99895
Diaphragm	.83	$.83^{.01}$	.99814
Withdrawal	.80	$.80^{.01}$	.99777
Rhythm	.79	$.79^{.01}$	.99765
Foam	.78	$.78^{.01}$	.99752
Douche	.60	$.60^{.01}$	.99490
Chance	.10	$.10^{.01}$	.97724

To summarize, the LONGPI is a mathematical calculation indicating the statistical likelihood of not getting pregnant per intercourse experience, for a particular birth control method, for the "average" woman in the U.S. With these statistical probabilities (LONGPI scores) at hand, we can now turn to individual subjects and develop a continuous

scale of pregnancy protection to be called the Pregnancy Protection Index.

#### Calculation of the Pregnancy Protection Index - PPI

The Pregnancy Protection Index (PPI) attempts to delineate, on a continuous scale, an individual's likelihood of not getting pregnant in a year based on her sexual and contraceptive behaviors. The following three individual parameters, related to a subject's sexual and contraceptive behaviors were used to derive the index:

- 1) frequency of contraceptive use,
- 2) contraceptive method(s) used in the last year,
- 3) frequency of intercourse

Subject's response to questions 16, 14, and 11 on the Individual Behavior Questionnaire were used to derive these three parameters.

Specifically, an individual's PPI score can be calculated as follows:

$$PPI = \text{LONGPI}_i^{\text{FOI}_i}, \text{ where}$$

PPI = Pregnancy Protection Index score

$\text{LONGPI}_i$  = likelihood of not getting pregnant per intercourse experience for birth control method  $i$

$\text{FOI}_i$  = frequency of intercourse per year for an individual using birth control method  $i$

This formula will be further elaborated upon and qualified after the three parameters have been discussed individually. Specific examples of the PPI calculations will be presented at that time.

Frequency of Contraceptive Use - FOCU Score

An individual's frequency of contraceptive use score (FOCU), which is one parameter of the PPI, was derived from response to question 16: "If you have had sexual intercourse in the last year, how often have you used a method of preventing pregnancy?" To derive the FOCU score from this question, an ordinal scale ranging from 0 - 1.0 was employed. Possible responses to this question were coded as presented in Table 3.

Table 3  
Frequency of Contraceptive Use (FOCU) Scores

Response	FOCU Score
Always	1.00
Almost always	.90
75% of the time	.75
50% of the time	.50
25% of the time	.25
Almost never	.10
Never	0

Contraceptive Methods Used in the Last Year

The contraceptive method(s) used by a subject in the last year were derived from her response to question 14: "In the last year, have you

used any method of preventing pregnancy? \_\_\_\_\_ Yes, \_\_\_\_\_ No. "If yes, please indicate all the methods, or combination of methods, you have used in the last year to prevent pregnancy."

Specifically the LONGPI score for each contraceptive method indicated was recorded (See Table 2). If a subject indicated that more than one birth control method had been used in the last year, it was assumed that each method was used for an equal portion of the total protected intercourses. In addition, if a subject did not "always" use a birth control method (FOCU  $\neq$  1.00), then she used a birth control method a given percentage of the time (FOCU), and "chance" for the remainder of the time (1.00 - FOCU). In this case, the scores for both the contraceptive method(s), and for chance had to be calculated to derive the PPI.

#### Frequency of Intercourse (in the last year) Score - FOI Score

The subject's frequency of intercourse per year (FOI) score was derived from response to question 11: "For the last year please indicate how frequently, on the average, you engaged in sexual intercourse." Specifically, responses to question 11 were scored as presented in Table 4.

#### The PPI - Calculations and Examples

With these three parameters operationalized (frequency of contraceptive use; types of contraceptives used in the last year and their LONGPI effectiveness; frequency of intercourse), an individual's PPI

Table 4  
Frequency of Intercourse Per Year (FOI) Score

Response	FOI Score
Almost every day	300
Several times a week	100
Once a week	52
Several times a month	24
About once a month or less	12
Almost never	4
Have not engaged in intercourse in the last year	0

score can now be calculated. Keep in mind that the PPI indicates how protected from pregnancy a woman is, based on her sexual and contraceptive behaviors. Higher scores indicate a subject is more protected from pregnancy (and therefore less likely to get pregnant).

CASE 1: IF A SUBJECT ALWAYS USED BIRTH CONTROL (FOCU = 1.00), AND HAS ONLY USED ONE BIRTH CONTROL METHOD (i) IN THE LAST YEAR, HER PPI SCORE WOULD BE CALCULATED AS FOLLOWS:

$$PPI = \text{LONGPI}_i^{\text{FOI}_i}, \text{ where}$$

PPI = Pregnancy Protection Index score,  
 LONGPI<sub>i</sub> = likelihood of not getting pregnant, per intercourse experience for birth control method i,  
 FOI<sub>i</sub> = frequency of intercourse per year for an individual using birth control method i.

Presented below are three examples of this situation:

EXAMPLE A:

Subject's response to question 16 is "always" -- (FOCU = 1.00)

Subject's response to question 14 is "diaphragm" -- (LONGPI<sub>diaphragm</sub> = .99814)

Subject's response to question 11 is "almost every day" -- (FOI = 300)

So, PPI = .99814<sup>300</sup> = .57206

EXAMPLE B:

Subject's response to question 16 is "always" -- (FOCU = 1.00)

Subject's response to question 14 is "rhythm" -- (LONGPI<sub>rhythm</sub> = .99765)

Subject's response to question 11 is "once a week" -- (FOI = 52)

So,  $PPI = .99765^{52} = .88484$

EXAMPLE C:

Subject's response to question 16 is "always" -- (FOCU = 1.00)

Subject's response to question 14 is "birth control pills" --

( $LONGPI_{BCP} = .99959$ )

Subject's response to question 11 is "once a week" -- (FOI = 52)

So,  $PPI = .99959^{52} = .97890^*$

\*NOTE. In the case of birth control pills it may seem incorrect, at first glance, to associate the likelihood of not getting pregnant with the frequency of intercourse. Birth control pills operate by preventing ovulation, and thereby preventing the occurrence of pregnancy. The theoretical effectiveness rate of birth control pills is 99.66, however the user effectiveness rate (ME) is only .90 - .96, indicating a 10 - 4 percent chance of pregnancy per 100 woman years. Since this is the case it seems appropriate to assume that the "average" woman using birth control pills does have a chance of getting pregnant. This chance of getting pregnant is associated with improper use of the method leading to ovulation. Hence, pregnancy is more likely for those with a higher frequency of intercourse. If this were not the case, both the user and theoretical effectiveness rates of birth control pills would be 99.66.

Special Case: If a subject indicates that she NEVER uses a birth control method, then she actually ALWAYS uses CHANCE. Therefore the PPI score can be calculated as above by assuming FOCU = 1.00;  $LONGPI_{chance} = .97724$ , and FOI is as given.

CASE 2: IF A SUBJECT ALWAYS USES BIRTH CONTROL (FOCU = 1.00), AND SHE INDICATES THAT TWO DIFFERENT BIRTH CONTROL METHODS (i,j) HAVE BEEN USED IN THE LAST YEAR, HER PPI SCORE WOULD BE CALCULATED AS FOLLOWS:

$$PPI = \text{LONGPI}_i^{\text{FOI}_i} \times \text{LONGPI}_j^{\text{FOI}_j}$$

As stated earlier, in this case it would be assumed that each method was used for an equal portion of the total protected intercourses.

Presented below are three examples of this situation:

EXAMPLE A:

Subject's response to question 16 is "always" -- (FOCU = 1.00)

Subject's response to question 14 is "condom & foam" and "rhythm" --

(LONGPI<sub>C&F</sub> = .99949; LONGPI<sub>Rhythm</sub> = .99765)

Subject's response to question 11 is "almost every day" -- (FOI = 300)

So, PPI = .99949<sup>150</sup> X .99765<sup>150</sup> = .92633 X .70264 = .65088

EXAMPLE B:

Subject's response to question 16 is "always" -- (FOCU = 1.00)

Subject's response to question 14 is "rhythm" and "withdrawal" --

(LONGPI<sub>rhythm</sub> = .99765; LONGPI<sub>withdrawal</sub> = .99777)

Subject's response to question 11 is "once a week" -- (FOI = 52)

So, PPI = .99765<sup>26</sup> X .99777<sup>26</sup> = .94067 X .94361 = .88762

EXAMPLE C:

Subject's response to question 16 is "always" (FOCU = 1.00)

Subject's response to question 14 is "diaphragm" and "condom" --

(LONGPI<sub>diaphragm</sub> = .99814; LONGPI<sub>condom</sub> = .99895)

Subject's response to question 11 is "once a week" -- (FOI = 52)

So, PPI = .99814<sup>26</sup> X .99895<sup>26</sup> = .95275 X .97306 = .92708

CASE 3: IF THE SUBJECT DOES NOT ALWAYS USE BIRTH CONTROL (FOCU  $\neq$  1.00), AND INDICATES THAT SHE HAS USED ONLY ONE BIRTH CONTROL METHOD (i) IN THE LAST YEAR, HER PPI SCORE WOULD BE CALCULATED AS FOLLOWS:

$$\text{PPI} = \text{LONGPI}_i^{\text{FOI}_i} \times \text{LONGPI}_j^{\text{FOI}_i} \quad (\text{Same formula as in Case 2})$$

In this case j would be calculated for "chance". Therefore the LONGPI of method i, and the LONGPI of method j (chance) must both be calculated. Three examples of this situation follow:

EXAMPLE A:

Subject's response to question 16 is "75% of the time" -- (FOCU = .75)

Subject's response to question 14 is "diaphragm" -- (LONGPI<sub>diaphragm</sub> = .99814; LONGPI<sub>chance</sub> = .97724)

Subject's response to question 11 is "once a week" -- (FOI = 52)

(FOI<sub>diaphragm</sub> = .75 X 52 = 39; FOI<sub>chance</sub> = .25 X 52 = 13)

So, PPI = .99814<sup>39</sup> X .97724<sup>13</sup> = .92997 X .74134 = .68942

EXAMPLE B:

Subject's response to question 16 is "50% of the time" -- (FOCU = .50)

Subject's response to question 14 is "withdrawal" -- (LONGPI<sub>withdrawal</sub> = .99777; LONGPI<sub>chance</sub> = .97724)

Subject's response to question 11 is "once a week" -- (FOI = 52)

(FOI<sub>withdrawal</sub> = .5 X 52 = 26; FOI<sub>chance</sub> = .5 X 52 = 26)

So PPI = .99777<sup>26</sup> X .97724<sup>26</sup> = .94361 X .54958 = .51859

EXAMPLE C:

Subject's response to question 16 is "50% of the time" - (FOCU = .50)

Subject's response to question 14 is "condom" -- (LONGPI<sub>condom</sub> = .99895;

$$\text{LONGPI}_{\text{chance}} = .97724 )$$

Subject's response to question 11 is "almost every day" -- (FOI = 300)

$$(\text{FOI}_{\text{condom}} = .5 \times 300 = 150; \text{FOI}_{\text{chance}} = .5 \times 300 = 150)$$

$$\text{So PPI} = .99895^{150} \times .97724^{150} = .85421 \times .03164 = .02703$$

CASE 4: IF A SUBJECT DOES NOT ALWAYS USE A BIRTH CONTROL METHOD, AND HAS USED MORE THAN ONE BIRTH CONTROL METHOD IN THE LAST YEAR, THE FOI SCORE FOR BIRTH CONTROL WILL BE DIVIDED EQUALLY AMONG THE VARIOUS METHODS. AGAIN THE FORMULA WOULD BE:

$$\text{PPI} = \text{LONGPI}_i^{\text{FOI}_i} \times \text{LONGPI}_j^{\text{FOI}_j} \dots$$

Qualification (Limitation) of the PPI

For the "average" fertile woman having randomly spaced intercourse and using no contraceptive method, the likelihood of not getting pregnant should be 26/30 for each intercourse experience. This is because the average menstrual cycle is 30 days, but the fertile period is only 4 days. Since a woman can conceive 4 days out of 30, she is actually unlikely to conceive 26 days out of 30. So each "random" intercourse has associated with it a 26/30 chance of not getting pregnant.

If this is true the likelihood of not getting pregnant for 100 intercourses for a woman using chance alone is virtually zero. (26/30 = .86666; then the PPI score =  $.86666^{100} = .0000006$ ) However, in the ME table given (Table 1) note that the ME of chance is .10, not zero. This is due to the fact that infertile women (and men) are included in the statistics and tend to complicate the scores by

artificially inflating the reliability of the methods. The ME of chance (.10) represents the infertility factor. Instead of trying to account for these infertile women, it was assumed that they were randomly distributed throughout the sample. Since women generally do not know if they are infertile, infertility is included as part of the effectiveness of all methods.

### Procedures

Data collection took place during the spring term of 1980. The names of 300 freshman women were randomly selected from a list of all freshman women attending one university in the Pacific Northwest spring term, and living in university housing. From the total sample pool of 1245 women, 300 (24%) were selected. They were randomly chosen by taking every fourth name on the university housing list.

These women were sent both a letter describing the study, and a consent form, through campus mail. Besides describing the study, the letter explained that their name was selected by random methods, that participation was voluntary, that all responses would be confidential and anonymous, and that all that was required of them was to fill out a questionnaire. If a subject chose not to participate in the study, she was asked to so indicate on the cover letter (by marking that response with an "X"), and to return it via campus mail to the researcher. If this box was marked, the subject was not contacted again concerning participation in the study. Included with the letter was a list of days and places where subjects could meet the researcher at a residence hall location to fill out the questionnaire. For each

location, one or two time periods on two different days were listed. (The letter, consent form, and list of locations may be found in Appendix E.) Each subject's consent form was signed and collected, and her name crossed off the master list of subjects, before she was given the questionnaire. Questionnaires were anonymous - they were not coded to names in any way. Upon completion of the questionnaire, subjects were asked to seal their completed questionnaire in an envelope and deposit it in a larger envelope marked, "Research Questionnaires".

Subjects who did not complete the questionnaire at a residence hall location (and who had not indicated that they were not interested in participating in the study) were sent a follow-up letter one week later. (Appendix F contains this letter.) They were invited to drop by the Family Life departmental office any day that week between the hours of 8:00 - 11:15 am or 1:00 - 4:45 pm to fill out the questionnaire. When they arrived the secretary carried out the procedures described above for distributing and collecting the questionnaires. They were seated in the small conference room in the Family Life office, and were required to complete the questionnaire there.

Of the 300 women invited to participate in the study, 130 (43%) completed the questionnaire, 48 (16%) refused to participate, and 122 (41%) never responded. Many of those who refused to participate did so because they were no longer classified as freshmen.

Of the 130 women who completed the questionnaire, 53 (41%) were virgins, whereas 77 (59%) of the women had experienced sexual intercourse at least once. Since this is a study of sexually active women,

only the responses of the 77 nonvirgins were analyzed.

All subjects in this study met the following criteria:

- 1) Were female.
- 2) Were 18, 19, or 20 years old.
- 3) Were enrolled at Oregon State University full-time.
- 4) Were living in university housing.
- 5) Had never been married.
- 6) Had experienced sexual intercourse at least once.

## CHAPTER IV

## ANALYSES AND RESULTS

Descriptive Data

To further describe the sample, Tables 5 and 6 present specific descriptive data. Table 5 summarizes respondents' age, country of origin, racial identity, religious affiliation, current living situation, and current dating status.

As is evident in Table 5, subjects were overwhelmingly U.S.-born, Christian, and Caucasian. About one-eighth of the subjects dated no one in the last year, whereas about half dated only one person or were engaged. The remainder were dating several people.

Table 6 summarizes respondents' intercourse experience, including: sexual activities ever engaged in, age at first intercourse, total number of intercourse experiences, number of sexual partners in the last year, reasons for intercourse, ease of talking to parents about sex, pregnancy experience(s), and reasons for nonuse of contraceptive methods.

As shown in Table 6, most subjects have engaged in all the sexual activities listed. About 62% (N = 48) of these women experienced their first sexual intercourse at age 17 or younger, while 38% (N = 29) were 18 or 19 years old. Over half (57%) of the subjects had engaged in sexual intercourse twenty or more times, whereas 6% (N = 5) had engaged in intercourse only one or two times. While 6% (N = 5) of the subjects had no sexual partners in the last year and 10% (N = 8) had four or

Table 5  
General Descriptive Data for All Subjects

Characteristic	N	Percentage
<u>Age</u>		
18	8	6.49
19	51	66.23
20	18	23.37
<u>Country of Origin</u>		
U.S.A.	66	93.0
Other	5	7.0
No Response	6	
<u>Racial Identity</u>		
Caucasian	67	91.8
African American	2	2.7
Mexican American	1	1.4
Asian American	1	1.4
Pacific Islander	1	1.4
Other : Irish American	1	1.4
No Response	4	
<u>Religious Affiliation</u>		
Protestant	33	44.6
Catholic	16	21.6
Other : Christian	19	25.7
None	6	8.1
No Response	3	
<u>Current Living Situation</u>		
Coed dormitory	43	56.6
Female-only dormitory	30	39.5
Cooperative	3	3.9
<u>Current Dating Status</u>		
Not dating anyone	9	11.7
Dating several people	13	16.9
Dating one person more than others	16	20.8
Dating only one person	34	44.2
Engaged	5	6.5

Note. Total N = 77

Table 6

## Descriptive Data Related to Sexual Intercourse for All Subjects

Characteristic	N	Percentage
<u>Sexual Activities Ever Engaged In<sup>a</sup></u>		
Holding hands	77	100
Kissing	77	100
Touching or fondling	77	100
Heavy petting	77	100
Petting to orgasm or ejaculation	74	96.1
Seeing each other nude	75	97.4
Oral sex	70	90.9
<u>Age at First Intercourse</u>		
13 or younger	1	1.3
14 - 15	13	16.88
16 - 17	34	44.16
18 - 19	29	37.66
<u>Total Number of Intercourse Experiences</u>		
1	3	3.9
2	2	2.6
3 - 4	8	10.4
5 - 10	9	11.7
10 - 20	11	14.3
20 or more	44	57.1
<u>Number of Sexual Partners in the Last Year</u>		
0	5	6.4
1	42	54.5
2	13	16.9
3	9	11.7
4	1	1.3
5 - 9	7	9.1
<u>Reasons for Intercourse<sup>b</sup></u>		
My boyfriend and I really want to	70	92.1
My boyfriend really wants to and I go along	18	23.7
I really want to and my boyfriend goes along	12	15.8
Some boys won't take "no" for an answer	1	1.3
If I don't my boyfriend will find someone else	1	1.3

Table 6  
 Descriptive Data Related to Sexual Intercourse for All Subjects  
 (Continued)

Characteristic	N	Percentage
Other girls my age are doing it	2	2.6
Other: _____	21	27.6
<u>Enjoyability of Sex</u>		
Extremely	47	63.5
Somewhat	24	32.4
Not too	2	2.7
Not at all	1	1.4
<u>Ease of Talking to Mother About Sex</u>		
Very easy or always easy	9	12.0
Usually easy	17	22.7
It depends on the issue - sometimes easy and sometimes hard	34	45.35
Never easy	13	17.35
Impossible	2	2.6
Does not apply	2	
<u>Ease of Talking to Father About Sex</u>		
Very easy or always easy	1	1.6
Usually easy	9	14.3
It depends on the issue - sometimes easy and sometimes hard	17	27.0
Never easy	17	27.0
Impossible	19	30.1
Does not apply	14	
<u>Ever Pregnant</u>		
Yes	10	13.5
No	64	86.5
No response	3	
<u>Of those ever pregnant, number of pregnancies</u>		
1	10	100.0

Table 6  
 Descriptive Data Related to Sexual Intercourse for All Subjects  
 (Continued)

Characteristic	N	Percentage
<u>Of those ever pregnant, outcome of pregnancy</u>		
Miscarriage	1	11.1
Abortion	7	77.8
Currently pregnant	1	11.1
No response	1	
<u>Reasons for Nonuse of Contraceptives<sup>a</sup></u>		
Social Personal reasons	28	48.6
Hedonistic or egocentric reasons	26	46.3
Cognitive reasons	19	34.0
Environmental limitations	2	3.6
Personal values	15	26.8
Desire pregnancy	0	0
No plan for sex or forgot to use	39	68.7

Note. Total N = 77.

<sup>a</sup>Subjects responded to each of these items independently.

<sup>b</sup>Subjects were instructed to mark any responses which applied, so category responses do not add up to the total N of 77, or to 100%.

more sexual partners, over 50% (N = 42) had only one partner. The vast majority of respondents (over 90%) claimed that both they and their partner really wanted to have intercourse. Furthermore, over 60% (N = 47) claimed to find sex extremely enjoyable. Only about 4% (N = 3) found sex to be not too, or not at all, enjoyable.

In general, subjects indicated that it was easier to discuss sex with their mothers than their fathers. Forty-five percent felt that the ease of discussing sex with their mother depended on the issue, so it was sometimes easy and sometimes hard. Subjects' ease of discussing sex with their fathers was harder to pinpoint as about one-fourth said it depended on the issue, about one-fourth said it was never easy, and about one-third said it was impossible.

Thirteen percent (N = 10) of these women had experienced pregnancy. No one reported having been pregnant more than once. Abortion was used to terminate most (78%, N = 7) of these pregnancies; however, one woman miscarried, and one was still pregnant. In reference to the total sample pool of sexually active women, it may be concluded that about 14% became pregnant and about 9% chose to end the pregnancy with an abortion.

On the Individual Behavior Questionnaire, subjects who did not always use contraceptives were asked to indicate any and all reasons why contraceptives were not used. Twenty-five reasons were listed. These reasons were intuitively clustered by the author into seven groups for purposes of analysis and generalization. These groups (with reason numbers as they appear in the questionnaire in parentheses) are as follows:

1. Social Personal Reasons: I'm afraid my parents might find the contraceptives and if they did they'd be hurt (6); my parents would be angry with me if they knew I have had intercourse (10); I'm too embarrassed to go get contraceptives (11); if I use contraceptives my partner might think I planned on having intercourse (17); and, it's too embarrassing to use contraceptives (18).

2. Hedonistic or Egocentric Reasons: Contraceptives are too premeditated - they ruin the spontaneity or romance (5); my partner didn't want us to use contraceptives (8); I didn't want to use contraceptives (9); contraceptives are too inconvenient, too much trouble, or no fun to use (14); using contraceptives would make sex less romantic (16); and, I believe contraceptives don't always work (23).

3. Cognitive Reasons: I won't get pregnant because I'm too young (7); I won't get pregnant because I have sex too infrequently (12); I won't get pregnant because I only have intercourse at the "safe time of the month" (19); I won't get pregnant because I don't want to have a baby (22); and, I believe contraceptives don't always work (23).

4. Environmental Limitations: Contraceptives are too expensive (3); and, I don't know where to go to obtain contraceptives (4).

5. Personal Values: I believe contraceptives are unnatural, dangerous, and/or unsafe (15); it is immoral or wrong to use contraceptives (20); contraceptives are more physically harmful than pregnancy (21); and,

I'm willing to accept the consequences (24).

6. Desire Pregnancy: I would like to be pregnant (1).

7. No Plan for Sex/Forgot: Since I wasn't planning on sex, I wasn't prepared (2); and, I just forgot to use contraceptives (13).

The three most frequently cited reasons for nonuse of contraceptives were: 1) no plan for sex or forgot (N = 39, 69%),  
2) social personal reasons (N = 28; 49%),  
3) hedonistic or egocentric reasons (N = 26; 46%).

No one indicated she failed to use contraceptives because she desired pregnancy, and only two people (3.6%) cited environmental limitations as their reasons for nonuse.

#### Hypotheses Testing Using the PPI

For each subject, scores were computed on the AWS, the ANS-IE, and the PPI. Scores ranged from 32 - 75 on the AWS, from 14 - 40 on the ANS-IE, and from .33916 - .99836 on the PPI. (The PPI was calculated on a small programmable calculator; the program for calculating the PPI may be found in Appendix G.) The mean, median, and mode were then determined for each test. Table 7 summarizes these results.

Pearson Product Moment Correlations were used to test the relationship between sex role orientation (as measured by the AWS score) and the PPI, and to test the relationship between locus of control (as measured by the ANS-IE score) and the PPI score. Table 8 presents the

Table 7

Descriptive Analysis of Subjects' Scores on the AWS, ANS-IE, and PPI

Measure	Total Scale Range	Subjects'			
		Scale Range	Mean	Median	Mode
AWS	0-75	32-75	57	59	61
ANS-IE	0-40	14-40	31	31	33
PPI	.001-1.00	.33916-.99836	.86247	.92046	.93790

Table 8

Pearson Product Moment Correlations for  
AWS, ANS-IE, and PPI

	ANS-IE	PPI
AWS	.0752	-.0908
ANS-IE		.1627 <sup>a</sup>

<sup>a</sup>  
p < .10

results of this analysis. No relationship was found between sex role orientation and the PPI. Although it did not reach statistical significance, a weak relationship was found between locus of control and the PPI. Locus of control was positively correlated to the PPI ( $r = .1627$ ,  $p < .10$ ) indicating that the more internal the locus of control, the more protected from pregnancy the subject is. Although this is a weak correlation, a direction and trend is indicated which suggests that these factors do vary together, and that their relationship is significantly different from chance.

Multiple regression was used to test the combined effects of sex role orientation and locus of control on contraceptive use (as measured by the PPI). This analysis tests the amount of variance in the PPI accounted for by the sex role orientation and locus of control measures. No significant findings emerged from this regression analysis. (A table presenting these results may be found in Appendix H.)

Initial analyses of the PPI showed that the great majority of students fell within a very narrow range of scores. Table 9 presents the PPI scores. While the total PPI scale ranges from .001 to 1.00, only 3% ( $N = 2$ ) of the subjects had scores below the midpoint of the scale, .4995. Furthermore, only 16% ( $N = 11$ ) had scores in the lower 75% of the scale (i.e., scores below .74925)! Because subject's scores on the PPI were so homogeneous, this measure seemed unable to differentiate subjects effectively in this sample. Therefore the various components of the PPI - that is, the frequency of contraceptive use, frequency of intercourse, and contraceptive methods used - were analyzed separately in order to further test the research hypotheses.

Table 9

Frequency Distribution of PPI Scores

PPI												
PPI SCORE	FREQ	ADJ PCT	CUM PCT	PPI SCORE	FREQ	ADJ PCT	CUM PCT	PPI SCORE	FREQ	ADJ PCT	CUM PCT	
.33916	1	1	1	.86379	1	1	34	.93790	4	6	71	
.49636	1	1	3	.87033	1	1	35	.94684	1	1	72	
.50675	1	1	4	.87846	1	1	37	.94958	1	1	74	
.54535	1	1	6	.88424	1	1	38	.95277	1	1	75	
.57548	2	3	9	.90053	1	1	40	.95321	2	3	78	
.65416	1	1	10	.90703	1	1	41	.95503	1	1	79	
.69121	1	1	12	.90895	1	1	43	.95541	1	1	81	
.69738	1	1	13	.91196	1	1	44	.95982	1	1	82	
.74169	2	3	16	.91323	1	1	46	.96089	1	1	84	
.75851	1	1	18	.91512	1	1	47	.96845	1	1	85	
.75860	1	1	19	.91694	1	1	49	.97673	1	1	87	
.76557	1	1	21	.92046	2	3	51	.98427	1	1	88	
.77985	1	1	22	.92141	1	1	53	.98609	1	1	90	
.79225	1	1	24	.92165	1	1	54	.99021	1	1	91	
.80828	1	1	25	.92223	1	1	56	.99063	1	1	93	
.80985	1	1	26	.92501	2	3	59	.99449	1	1	94	
.81266	1	1	28	.92982	1	1	60	.99509	1	1	96	
.81839	1	1	29	.93143	1	1	62	.99581	1	1	97	
.84461	1	1	31	.93360	1	1	63	.99617	1	1	99	
.86302	1	1	32	.93372	1	1	65	.99836	1	1	100	

CODE	FREQ	MISSING DATA		CODE	FREQ
9	9				
MEAN	86247.103	STD ERR	1701.293	MEDIAN	92046.000
MODE	93790.000	STD DEV	14029.135	VARIANCE	.1968E+09
VALID CASES	68	MISSING CASES	9		

Descriptive Data for Parameters of the PPI

Descriptive data for each of the parameters contained in the PPI may be found in Tables 10 - 13. Descriptive data regarding FOCU may be found in Table 10.

Table 10

Frequency of Contraceptive Use (FOCU) --  
Distribution of Subject's Scores

Response	FOCU Score	N	Perc.	Cum. Perc.
Always	1.00	20	26.7	26.7
Almost always	.90	29	38.7	65.3
75% of the time	.75	7	9.3	74.7
50% of the time	.50	5	6.7	81.3
25% of the time	.25	3	4.0	85.3
Almost never	.10	5	6.7	92.0
Never	0	6	8.0	100.0
No response		2		

Overall, this group was very contraceptively protected with 65% (N = 49) of the women having used contraceptives always or almost always in the last year. However there were about 19% (N =14) of the women who used contraceptives 25% of the time or less.

Table 11 contains descriptive data on subjects' FOI.

Table 11  
 Frequency of Intercourse (FOI) -- Distribution  
 of Subject's Scores

Response	FOI Score	N	Perc.	Cum. Perc.
Almost every day	300	2	2.6	2.6
Several times a week	100	10	13.2	15.8
Once a week	52	9	11.8	27.6
Several times a month	24	24	31.6	59.2
About once a month or less	12	18	23.7	82.9
Almost never	4	6	7.9	90.8
Have not engaged in intercourse in the last year	0	7	9.2	100.0
No response		1		

As shown in Table 11, the majority of students (55%, N = 42) engaged in intercourse somewhere between several times a month and once a month or less. At the high end of the scale we find that about 3% (N = 2) engaged in intercourse almost every day, and about 13% (N = 10) engaged in intercourse several times a week. At the low end of the scale, we find that 8% (N = 6) almost never, and 9% (N = 7) never, engaged in intercourse in the last year.

Data regarding contraceptive use among college women at first intercourse; in the last year; ever; and at the most recent intercourse,

as found in this study, and as reported by various authors, may be found in Table 12.

Table 12  
Comparison of Findings on Contraceptive Use  
With Six Previous Studies

Occasion	Percentage of Contraceptive Use						
	Current Study	Bauman 1971	Fox 1977	Maxwell et al. 1977	Vincent & Stelling 1973	Oswalt 1974	Fujita et al. 1971
First Intercourse	56	83	49	80	--	--	--
Last Year	84	100	--	--	67	93	--
Ever	92	--	--	--	--	--	78
Most recent Intercourse	81	--	78	90	--	--	--

This study confirms former research findings that women are frequently contraceptively unprotected at first intercourse; in this study only 56% were protected at their first intercourse. In the last year 84% (N = 65) of respondents used some contraceptive method, and 9.2% (N = 7) were not sexually active, so actually 6.8% (N = 5) were sexually active but used no method. This supports Oswalt's (1974) finding that, in general, 7% of young college women never use birth control during intercourse.

Finally, Table 13 summarizes findings from other authors, as well as those of this study, for the types of contraceptive methods used by college women at first intercourse; usually; ever; and at the most recent intercourse.

In this study the three methods of birth control used most often in the last year, in descending order, were: 1) birth control pills, 2) condom, and 3) withdrawal. At first intercourse, the two methods used most frequently were condom (used by 22%), and withdrawal (used by 21%). By comparison, 47% of the women used nothing at first intercourse, and 5% used the birth control pill. At the most recent intercourse the birth control pill was clearly the method of choice. No one in this study had ever used an IUD, and very few had ever tried a diaphragm.

#### Hypothesis Testing with FOCU and FOI Scores

Using Pearson Product Moment Correlations, the relationship of sex role orientation, and of locus of control, to FOCU and FOI, was investigated. The results are contained in Table 14.

Although it did not reach statistical significance, a positive relationship was found between sex role orientation and FOCU ( $\underline{r} = .1472$ ,  $p < .10$ ), indicating that the more nontraditional the woman, the more frequently she used contraceptives during intercourse. That is, a more nontraditional woman used a contraceptive method a higher percentage of the time when she had intercourse than did a more traditional woman. In addition, a positive relationship between sex role orientation and frequency of intercourse was found ( $\underline{r} = .2348$ ,  $p < .01$ ). This

Table 13  
Contraceptive Methods Used by College Women Under Various Conditions

Author	Contraceptive Method									
	Birth Control Pills	IUD	Diaphragm	Condom and Foam	Condom	Foam or Jelly	Withdrawal	Rhythm	Douche	Nothing
Use at First Intercourse										
Bauman 1971	2.4%	0	0	--	33.3%	0	40.5%	7.1%	0	16.7%
Fox 1977	6.0%	?	?	?	36.0%	?	?	?	?	51.0%
Maxwell et al. 1977	8.0%	0	1%	--	30.0%	1%	42.0%	13.0%	2%	20.0%
Moore 1980*	5.0%	--	--	2%	22.0%	--	21.0%	6.0%	--	44.0%
Usually Used in the Last Year										
Bauman 1971	7.0%	0	0	--	46.5%	7%	27.9%	11.6%	0	0

Table 13  
 Contraceptive Methods Used by College Women Under Various Conditions  
 (Continued)

Author	Contraceptive Method									
	Birth Control Pills	IUD	Diaphragm	Condom and Foam	Condom	Foam or Jelly	Withdrawal	Rhythm	Douche	Nothing
Vincent & Stelling 1973	**59.0%	2.6%	0	--	20.5%	2.6%	--	15.4%	--	0
	***36.0%	0	0	--	24.0%	4.0%	--	24.0%	--	12.0%
	**** 5.3%	0	0	--	47.4%	5.3%	--	21.1%	--	21.0%
Oswalt 1974	56.0%	--	--	8%	--	--	--	15.0%	--	7.0%
Moore <sup>a</sup> 1980*	32.0%	--	5%	6%	23.0%	8.0%	22.0%	13.0%	--	16.0%
Ever Used <sup>a</sup>										
Fujita et al. 1971	30.0%	0	0	5%	21.0%	6.0%	40.0%	31.0%	--	22.0%
Moore 1980*	37.0%	--	9%	7%	45.0%	13.0%	40.0%	21.0%	--	8.0%

Table 13  
Contraceptive Methods Used by College Women Under Various Conditions

(Continued)

Author	Contraceptive Method									
	Birth Control Pills	IUD	Diaphragm	Condom and Foam	Condom	Foam or Jelly	Withdrawal	Rhythm	Douche	Nothing
Used At Most Recent Intercourse										
Fox 1977	47.0%	--	--	--	21.0%	--	--	--	--	22.0%
Maxwell et al. 1977	50.0%	1%	1%	--	24.0%	3%	16.0%	9.0%	2%	10.0%
Moore 1980*	40.0%	--	3%	1%	17%	4%	7%	8%	--	19.0%

- \* Results of Current Study
- \*\* Subjects classified as "Very Active"
- \*\*\* Subjects classified as "Moderately Active"
- \*\*\*\* Subjects classified as "Seldom Active"

<sup>a</sup> Percentages do not add up to 100% as subjects were to indicate all methods ever used.

Table 14  
Pearson Product Moment Correlations for AWS, ANS-IE  
FOCU, and FOI

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	FOCU	FOI
AWS	.1472 <sup>a</sup>	.2438 <sup>**</sup>
ANS-IE	.2431 <sup>**</sup>	.0167

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<sup>a</sup>  
p < .10  
\*p < .05  
\*\*p < .01  
\*\*\*p < .001

finding indicates that the more nontraditional the woman, the more frequently she engaged in intercourse. A positive relationship was also established between locus of control and FOCU ( $r = .2341$ ,  $p < .01$ ). This suggests that the more internal the locus of control, the more frequently contraceptives were used. Finally, however, no relationship was found between locus of control and FOI.

#### Additional Analyses

The limited spread of scores on the AWS and ANS-IE scales showed that this was a very homogeneous sample, with the vast majority of subjects being both very nontraditional in sex role orientation, and very internal in locus of control. Using the midpoint of the AWS scale, 38, to divide subjects into two groups (traditional and nontraditional), only two subjects in this study could be classified as traditional. Similarly, using the midpoint of the ANS-IE scale, 20, to divide subjects into two groups (external and internal), only three subjects could be classified as external. Subjects' scores on these two scales are presented in Tables 15 and 16.

In order to perform analysis of variance, and chi-squares, the median score on the AWS was used to divide the subjects into two groups: low nontraditionals and high nontraditionals. Those with a score below 60 were classified as low nontraditionals, while those with a score of 60 or more were classified as high nontraditionals.

Similarly, the median score on the ANS-IE scale was used to divide subjects into two groups - low internals and high internals. Those with a score below 31 were classified as low internals, and

Table 15  
 Frequency Distribution of Subjects' Scores  
 on the AWS

AWS Score	N	Perc.	Cum. Perc.	AWS Score	N	Perc.	Cum. Perc.
32	1	1	1	59	5	6	51
37	1	1	1	60	2	3	53
38	2	3	5	61	7	9	62
41	3	4	9	62	5	6	69
42	1	1	10	63	5	6	75
44	1	1	12	64	4	5	81
45	2	3	14	65	3	4	84
46	1	1	16	66	3	4	88
47	1	1	17	67	1	1	90
49	1	1	18	68	1	1	91
52	3	4	22	69	2	3	94
53	4	5	27	70	2	3	96
54	2	3	30	71	1	1	97
55	4	5	35	72	1	1	99
57	3	4	39	75	1	1	100
58	4	5	44				

Table 16  
 Frequency Distribution of Subjects' Scores  
 on the ANS-IE Scale

ANS-IE Score	N	Perc.	Cum. Perc.	ANS-IE Score	N	Perc.	Cum. Perc.
14	1	1.3	1.3	32	8	10.4	66.2
17	1	1.3	2.6	33	9	11.7	77.9
19	1	1.3	3.9	34	4	5.2	83.1
25	2	2.6	6.5	35	6	7.8	90.9
27	7	9.1	15.6	36	2	2.6	93.5
28	7	9.1	24.7	37	1	1.3	94.8
29	7	9.1	33.8	38	2	2.6	97.4
30	8	10.4	44.2	39	1	1.3	98.7
31	9	11.7	55.8	40	1	1.3	100.0

those with a score of 31 or above were classified as high internals.

### Analysis of FOCU and FOI

Analysis of variance was performed to determine whether there was a significant difference between low and high nontraditionals, or between low and high internals, on the dependent variables, FOCU and FOI. Tables 17 and 18 contain the results of these analyses.

Table 17  
Summary Table of Two-Way Analysis of Variance  
on FOCU

Source of Variance	df	Mean Square	<u>F</u>	<u>p</u>
<u>Main Effects</u>	2	.397	3.696	.03
Locus of Control	1	.401	3.729	.05
Sex Role Orientation	1	.340	3.164	.08
<u>2 Way Interaction</u>	1	.005	.048	.82
Error	71	.108		

As indicated in Table 17, a positive relationship between sex role orientation and FOCU emerged, but it did not reach statistical significance ( $F(1) = 3.164, p < .08$ ). This relationship suggests that high nontraditionals use contraceptives more regularly than do low nontradi-

tionals. In addition, a significant positive relationship emerged between locus of control and FOCU ( $F(1) = 3.729, p < .05$ ). This suggests that the more internal the locus of control, the more frequently contraceptives were used. The two-way interaction of sex role orientation and locus of control on FOCU was not significant.

Table 18  
Summary Table of Two-Way Analysis of Variance  
on FOI

Source of Variance	df	Mean Square	$F$	$p$
<u>Main Effects</u>	2	4.628	2.104	.12
Locus of Control	1	.362	.164	.68
Sex Role Orientation	1	8.558	3.891	.05
Two Way Interaction	1	1.014	.461	.49
Error	72	2.199		

As indicated in Table 18, a positive relationship between sex role orientation (low nontraditional vs. high nontraditional) and FOI emerged, and this relationship did reach statistical significance at the .05 level,  $F(1) = 3.891, p < .05$ . This suggests that more non-traditional women engaged in intercourse significantly more than did less nontraditional women. No significant relationship between locus of control and FOI was evident. Finally, the two-way interaction

between sex role orientation and locus of control did not reach statistical significance for explaining FOI.

In essence, this analysis of variance confirmed the correlational analyses conducted earlier by suggesting that more nontraditional women engaged in intercourse more, and used contraceptives more, than did more traditional women. Furthermore, as in the earlier correlational analyses, there appeared to be no difference between low internals and high internals regarding frequency of intercourse, but high internals were more likely to use contraceptives regularly.

#### Use vs. Nonuse of Contraceptives

Low and high nontraditionals were next evaluated in terms of use vs. nonuse of contraceptives in the last year, by means of chi-square analyses. No significant differences were evident ( $\chi^2 = 2.32, p < .12$ ). Twenty-nine low nontraditionals used some form of birth control in the last year (9 did not), and 34 high nontraditionals used some form of birth control in the last year (3 did not).

Similarly, locus of control was related to use vs. nonuse of contraceptives in the last year, by means of chi-square analyses. At the .06 level of significance, the data suggests that high internals were more apt to use some form of birth control in the last year than were low internals ( $\chi^2 = 3.35, p < .06$ ). Twenty-six low internals used some form of birth control in the last year (9 did not), and 37 high internals used some form of birth control in the last year (3 did not).

Types of Contraceptive Methods Used

Chi-Squares were performed to evaluate the difference between low and high nontraditionals in terms of types of contraceptive methods used in the last year. Table 19 presents a summary of this analysis.

Table 19

Summary Table of Chi-Squares: AWS and ANS-IE  
By Types of Contraceptive Methods Used in  
the Last Year

Contraceptive Method	AWS		ANS-IE	
	Chi-Square	p	Chi-Square	p
Birth Control Pills	4.26	.03*	0	1.00
IUD	--	--	--	--
Diaphragm	0	1.00	.05	.82
Condom and Foam	.62	.42	.33	.56
Condom	.91	.33	.20	.65
Foam	0	1.00	.03	.85
Jelly	0	1.00	0	1.00
Withdrawal	1.46	.22	0	1.00
Rhythm	.07	.77	.005	.94
Other	.26	.60	.12	.72

The only significant difference in types of contraceptive methods used was related to birth control pills, with high nontraditionals using this method significantly more than low nontraditionals ( $\chi^2 = 4.26$ ,  $p < .03$ ). Twenty-four high nontraditionals and 14 low nontraditionals used this method in the last year, whereas 14 high nontraditionals and 24 low nontraditionals did not. There was no difference between the two groups in terms of the use of withdrawal, condom, foam or jelly, condom and foam, rhythm, diaphragm, IUD, or "other" methods.

Table 19 also presents a summary of the chi-square analysis run to determine the difference between low and high internal women in terms of the types of contraceptives used in the last year. There were no significant differences evident.

As a final statistical evaluation of the types of contraceptive methods used by low and high nontraditional women, and by low and high internal women, one-way analyses of variance were performed. Subjects were divided into three groups based on the type of contraceptive they used at their first intercourse experience. Group one used no method, group two used an unreliable method (defined as withdrawal, rhythm, foam, or jelly), and group three used a reliable method (defined as condom, condom and foam, diaphragm, IUD, or birth control pills). Using one-way analysis of variance, the mean AWS scores of these groups were first compared. Then the mean ANS-IE scores of these groups were compared. The same procedures and analyses were carried out for types of contraceptive methods used at the most recent intercourse experience. Table 20 presents a summary of these results.

Table 20  
Results of One-Way Analyses of Variance of AWS and ANS-IE  
with Intercourse Experience

Independent Variable	Source	df	Mean Square	F	p
First Intercourse					
AWS	Between groups	1	79.2820	.680	.41
	Within groups	42	116.6042		
	Total	43			
ANS-IE	Between groups	1	20.1280	2.660	.11
	Within groups	42	7.5657		
	Total	43			
Most Recent Intercourse					
AWS	Between groups	1	733.8246	9.356	.003
	Within groups	59	78.4341		
	Total	60			
ANS-IE	Between groups	1	.1553	.013	.91
	Within groups	59	12.2831		
	Total	60			

Regarding the first intercourse experience, there appeared to be no difference (in sex role orientation or locus of control) between women using no method, an "unreliable" method, or a "reliable" method. Regarding the most recent intercourse experience, these three groups of women did not differ with regard to their locus of control scores. However, there was a significant difference in sex role orientation (as measured by the AWS) between women who used no method, an "unreliable" method, or a "reliable" method at their most recent intercourse. Therefore, a Scheffe Multiple Range test was used to determine which of the three groups were significantly different ( $p = .05$ ). This analysis showed that groups two and three differed. The mean AWS score for group two was 50.2, while the mean AWS score of group three was 59.5. This finding suggests that women using an unreliable method at their most recent intercourse experience were more traditional in sex role orientation, than were women using a reliable method at their most recent intercourse experience.

#### The Sexual Behavior Subscale of the AWS

Respondents were administered the 7-item sexual behavior subscale (SBS) of the AWS in addition to the intact, short form of the AWS. These scales were intended to allow one to distinguish traditional from nontraditional women. Since this research focused on sexual and contraceptive behaviors, it was believed that the SBS would serve as a validity check and would provide pertinent information for independent analysis.

The scale range of the SBS is 0 - 21, with 0 representing a traditional response on all 7 items, and 21 representing a nontraditional response on all 7 items. Subject's scores ranged from 1 - 17, with 52 people (68%) falling in the traditional half of the scale, and 25 (32%) falling in the nontraditional half of the scale. The mean, median, and mode of the SBS were as follows: mean - 9; median - 9; mode - 9.

Pearson Product Moment Correlations were used to test the relationship between the SBS and scores on the: 1) AWS; 2) PPI; 3) FOCU; and 4) FOI. Table 21 presents these results.

Table 21  
Pearson Product Moment Correlations  
for SBS, AWS, PPI, FOCU, FOI

	AWS	PPI	FOCU	FOI
SBS	.5959 <sup>***</sup>	-.2195 <sup>*</sup>	.1660 <sup>a</sup>	.3534 <sup>***</sup>

<sup>a</sup>  
p < .10  
\*p < .05  
\*\*p < .01  
\*\*\*p < .001

The SBS was positively correlated to the AWS indicating that women who were more nontraditional in the sexual behavior subscale were also more nontraditional on the AWS. This is important to keep in mind as the range of scores on the SBS was much wider than it was on the AWS.

Although it did not reach statistical significance, the SBS was

positively correlated to FOCU. A trend, or direction, is suggested here with the women who were more nontraditional on the SBS, being more regular contraceptive users.

The SBS was very positively correlated to FOI scores ( $r = .3534$ ;  $p < .001$ ). This indicates that women who were nontraditional on the SBS engaged in intercourse significantly more, than did less nontraditional women. This finding makes intuitive sense in that the SBS deals with attitudes related to sexual behavior before marriage ( $N = 3$ ), and infidelity after marriage ( $N = 4$ ). If a woman believes the aforementioned behaviors are acceptable, she is more likely to act upon her beliefs and engage in frequent premarital intercourse, than is a woman who does not believe in the acceptability of these behaviors.

Finally, the SBS was negatively correlated to the PPI ( $r = -.2195$ ,  $p < .05$ ). This indicates that the more nontraditional the woman on the SBS, the less protected from pregnancy she was (i.e., the lower her PPI score). This finding is clearly contrary to the hypothesis. However, since the PPI relies so heavily upon FOI as a parameter, and since more nontraditional women had a significantly higher FOI, the PPI may appear artificially deflated in this case. Recall that the two basic assumptions of the PPI are that: 1) FOI is related to the likelihood of pregnancy, and 2) every intercourse experience, using a given birth control method, has associated with it the same probability of avoiding pregnancy. Given these assumptions and the fact that more nontraditional women exposed themselves to the possibility of pregnancy significantly more often than did more traditional women, it appears reasonable that the nontraditional women in this study were less

protected from pregnancy. If the subject pool had been more heterogeneous, so that traditional women, and especially traditional women engaging in frequent intercourse, were included, it is still hypothesized that these traditional women would be less protected from pregnancy than the more nontraditional women.

For the next statistical analysis, the t-test was used to relate placement on the SBS with FOCU and FOI. Subjects were divided at the midpoint of the scale, with those in the lower half being classified as traditional, and those in the upper half being classified as nontraditional. There was no difference between the groups on FOCU ( $t$ -value = -1.08,  $p < .28$ ). There was a significant difference on FOI ( $t$ -value = 2.76,  $p < .007$ ), with women who were more traditional on the SBS having a lower FOI than did nontraditional women.

The t-test was also used to relate placement on the SBS with use vs. nonuse of contraceptives in the last year. Subjects were divided into two groups based on whether they had used a contraceptive method in the last year or not. Results of this analysis indicate that women who used a birth control method in the last year were more nontraditional on the SBS, than were women who used no birth control method in the last year ( $t$ -value = 1.78,  $p < .07$ ).

## CHAPTER V

## SUMMARY AND DISCUSSION

Objectives of the StudyDescriptive Data

One major objective of this study was to describe the sexual and contraceptive behavior of young, unmarried college women. In order to do this many individual parameters related to sexual behavior were explored, and most were reported in the "Analysis and Results" section.

Of all the women originally sampled in this study, about 41% (N = 53) were virgins, whereas 59% (N = 77) had engaged in intercourse. This supports the trend cited in the literature that higher proportions of college women today are becoming sexually active before marriage, than was true in the past. Beyond this, the incidence of non-virginity among freshman women students reported by Needle (1975) and by Oswalt (1974) was 40% and 42%, respectively. In this study it was 59%. Although the method of data collection in this study may have been responsible for the large number of nonvirgin women participating, it is equally reasonable to postulate that the percentage of young, freshman women in 1980 who are sexually active, is greater than the percentage of comparable women when earlier studies were conducted.

Of the sexually active women sampled, about 55% had had only one sexual partner in the last year, and only about 10% had more than four partners in the last year. Most respondents claimed they reserved

intercourse for partners they were in love with, they were planning to marry, or they were emotionally attached to. Only 14% reported having intercourse in the last year with a pick-up or casual date, or with someone they dated often but to whom they were not emotionally attached. It is interesting to note that women in this study overwhelmingly proclaimed (92%) that they had intercourse, not because they felt pressured into it, but because both they and their partner really wanted to. In addition, 96% found sex to be enjoyable (32% felt it was somewhat enjoyable while 64% felt it was extremely enjoyable).

Extrapolating from this data it can be concluded that most young college women today who are choosing to have premarital intercourse are reserving this intercourse for people they believe they are in love with, and are enjoying their sexual experiences very much.

In general, women in this study were fairly well protected from pregnancy. Most, 65%, always or almost always used contraceptives during intercourse in the last year. In contrast to this, about 15% (N = 11) almost never or never used contraceptives. While these 15% were very unprotected, about 17% almost never, or never, engaged in intercourse in the last year. So, taken as a group, the more sexually active women were generally the more contraceptively protected. A significant Pearson Product Moment Correlation between FOI and FOCU supports this conclusion ( $r = .3886$ ,  $p < .001$ ).

Also of interest are the types of contraceptive methods used by young college women today. Of the five most effective birth control methods (birth control pills, IUD, diaphragm, condom and foam, and condom), only two seem acceptable to most respondents. In the last

year, the birth control pill was used by 32%, and the condom was used by 23% of respondents. Very few women used (or had ever used) the diaphragm (5%), or condom and foam together (6%); and, no one had ever used the IUD.

Lastly, it was interesting to note that most women indicated that they have trouble discussing sex with their parents, especially their fathers. With their mothers, most felt that the ease of discussion depended on the issue; but with their fathers, the majority felt that it was almost always impossible to discuss sex.

### Tests of Hypotheses

#### Sex Role Orientation Related to Contraceptive Use

A second major objective of this study was to examine the relationship between the sex role orientation and the contraceptive use patterns of young, unmarried, college women. It was predicted that women who espoused nontraditional sex role orientations would be more protected from pregnancy than their traditional counterparts. Specifically, it was predicted that nontraditional women would be more likely than traditional women to use contraceptives; to use "effective" contraceptive methods; and to use contraceptives regularly.

The AWS scale was used to measure sex role orientation. Of the women sampled, 75 out of 77 were classified as nontraditional based on the AWS scale. Because this was the case, it was a priori clear that it would be difficult to test the hypotheses with this sample. Therefore, rather than testing the hypotheses on the basis of traditional

vs. nontraditional, the hypotheses were tested on the basis of less nontraditional vs. more nontraditional.

The PPI, designed to measure the dependent variable, contraceptive use, did not differentiate between less nontraditional and more nontraditional women. However, when the various parameters of the PPI - types of contraceptive methods used, frequency of contraceptive use, and frequency of intercourse - were investigated individually, several trends were found which lend support to the hypotheses.

With regard to types of contraceptive methods used, the birth control pill was found to be used significantly more by more nontraditional women than by less nontraditional women. It is noteworthy that the birth control pill is the single most effective birth control method, and that it is, indeed, the method of choice for these more nontraditional women. (No significant differences between low and high nontraditionals were discerned for any of the other birth control methods.) Furthermore, when the most recent intercourse experience was investigated, the women who used a "reliable" birth control method were the more nontraditional women. In this analysis "reliable" methods were defined as birth control pills, IUD, diaphragm, condom and foam, and condom. These findings lend support to the research hypotheses.

With regard to frequency of contraceptive use, there was a positive trend between more nontraditional sex role orientation and more frequent contraceptive use. This relationship is referred to as a trend because it did not reach statistical significance. Considering the homogeneity of the sample, this trend is quite important; to the author it suggests that the hypothesis may still prove to be quite useful for predicting

effective contraceptive use in a more heterogeneous sample.

Finally, with regard to frequency of intercourse, more nontraditional women were found to have a significantly higher frequency of sexual intercourse than did more traditional women.

While there were several significant findings and trends uncovered which support the hypothesis that nontraditional sex role orientation is related to effective contraceptive use, the data did not uphold this distinction between groups on other parameters of contraceptive use. For example, there was no difference between low and high nontraditionals with regard to the percentage of women who have or have not used birth control in the last year. Considering the homogeneity of the sample this is not surprising. Women in this study were, generally speaking, similar with regard to contraceptive behavior and sex role orientation. They were all relatively nontraditional and contraceptively protected. Had there been a wider range of traditionality among the subjects the results may have been different and much more significant. Limitations of this study regarding subject selection and research procedures will be discussed later in this chapter.

There was also no significant difference between those who used, or did not use, birth control at first intercourse. Most researchers in this field of study have cited similar results. Contraceptive use at first intercourse generally seems to be a haphazard and unpredictable occurrence. Authors cited earlier have found the incidence of nonuse of contraceptives at first intercourse to range from 20% to 51%.  
(See Table 12.)

To summarize, nontraditional sex role orientation seems to be associated with: 1) the use of the birth control pill; 2) the use of "reliable" contraceptive methods at most recent intercourse; and 3) a higher frequency of intercourse. Furthermore, a positive trend linking sex role orientation and frequency of contraceptive use was suggested. Sex role orientation does not seem to be associated at all with the use vs. nonuse of contraceptives in the last year, or with the use vs. nonuse of contraceptives at first intercourse.

The SBS was used to gain further insight into the relationship of sex role orientation and contraceptive use. Using both correlational analysis and t-tests, higher FOCU and higher FOI were found among those women who espoused nontraditional attitudes regarding sexual behaviors. This finding did not reach statistical significance for the FOCU, but it did for the FOI. In both cases these findings confirmed a relationship between the AWS and these parameters. Contrary to the research hypothesis, the SBS was negatively correlated to the PPI, indicating that more nontraditional women had a lower degree of protection from pregnancy. The increased probability of pregnancy for nontraditional women, suggested by the low PPI scores, was attributed primarily to the higher frequency of intercourse (and therefore the greater exposure to the possibility of pregnancy) among these women. Finally, the women who used a birth control method in the last year were significantly more nontraditional on the SBS than were women who used no birth control method in the last year.

Perhaps the most interesting finding from analysis of the SBS was it's relationship to the AWS and the range of subject's responses on

these two scales. On the AWS the range of responses was 32 - 75, with two subjects falling in the lower (traditional) half of the scale, and 75 falling in the higher (nontraditional) half of the scale. By contrast, on the SBS the range of responses was 1 - 17, with 52 people falling in the lower (traditional) half of the scale, and 25 falling in the upper (nontraditional) half of the scale. So, while the vast majority (97%) of the subjects in this study are nontraditional in their attitude toward the roles of women in society (as measured by the AWS), most (68%) are traditional in their attitude about premarital and extramarital sexual intercourse (as measured by the SBS).

#### Locus of Control Related to Contraceptive Use

The third major objective of this study was to examine the relationship between the locus of control and the contraceptive use patterns of respondents. It was predicted that women with an internal locus of control would be more protected from pregnancy, than would women with an external locus of control. Specifically, it was hypothesized that internal women would be more likely to use contraceptives; to use "effective" contraceptive methods; and to use contraceptives regularly.

The ANS-IE scale was used to measure locus of control. Of the respondents, 3 out of 77 were classified as externals (as their scores fell in the lower half of the scale), and 74 were classified as internals (as their scores fell in the upper half of the scale). The PPI was used to measure the dependent variable, contraceptive use.

Results of a Pearson Product Moment Correlation between ANS-IE and PPI scores confirmed a weak, but positive, relationship between

locus of control and protection from pregnancy ( $p < .10$ ). Although not statistically significant, the direction of this relationship was positive, indicating that women with a more internal locus of control were more protected from pregnancy than were externals. The small sample size and homogeneity of the group probably influenced the weak results.

Correlational analyses also indicated a significant positive relationship between locus of control and FOCU ( $p < .01$ ), but no relationship between locus of control and FOI. So, whereas nontraditional sex role orientation seems to be associated with a higher frequency of intercourse, an internal locus of control seems to be associated with greater regularity in contraceptive use. By contrast, sex role orientation is not strongly associated with FOCU, and locus of control is not associated at all with FOI.

When subjects were divided into two groups - low internals and high internals - and chi-square analyses were performed, the low and high internals did not differ at all regarding types of contraceptive methods used. Although not statistically significant, analysis of variance revealed that high internals were more apt to have used some form of birth control in the last year than were low internals ( $p < .06$ ).

To summarize, internal locus of control seems to be associated with a higher FOCU, and this relationship was statistically significant in this study. In addition, a trend or direction between locus of control and the PPI was identified. Finally, although not statistically significant, high internals were more likely to have used some birth control method in the last year than were low internals. No distinction

between high and low internals was uncovered regarding FOI, types of contraceptives used, or use of "reliable" vs. "unreliable" methods.

Once again because most (96%) respondents had a very high internal locus of control score it was impossible to truly test the hypothesis. Instead of comparing internals and externals as originally proposed, it was possible only to compare low and high internals. This method of comparison may have obscured several relationships between locus of control and contraceptive use.

#### Sex Role Orientation and Locus of Control Related to Contraceptive Use

The fourth major objective of this study was to examine contraceptive use as a function of both sex role orientation and locus of control. It was hypothesized that the combination of a nontraditional sex role orientation and an internal locus of control would be more strongly associated with efficient contraceptive behavior than would either variable alone.

The PPI was used as the measure of contraceptive use, and regression analysis was used to test the amount of variance in the PPI accounted for by the sex role orientation and locus of control measures. While locus of control accounted for more of the variance in the PPI than did sex role orientation, the combined effects of these two parameters was not significant in predicting effective contraceptive use.

Once more the fact that the sample population was very homogeneous in all three parameters - sex role orientation, locus of control, and pregnancy protection - precluded the adequate testing of the hypothesis.

### Subjects and Procedures

The primary limitation of this study was that subjects were overwhelmingly nontraditional in sex role orientation, and internal in locus of control. Without a wide range of scores on the above scales it was difficult to test the hypotheses.

This research project was designed to apply Scanzoni's (1975) ideas about fertility and contraceptive use among traditional and nontraditional married women, to a study of unmarried women. So, while Scanzoni found traditional women to be less likely to contracept, more likely to desire and have children, and more likely to have a greater number of children, he was working within the sanctions of marriage. It seems reasonable to assume that when these same ideas are applied to an unmarried population, different principles may operate. For example, it is reasonable to postulate that unmarried, traditional women will remain virgins until marriage. They may find it very unacceptable and unrewarding to have intercourse, or to risk possible pregnancy, before marriage. Once within the sanctions of marriage, these same women may find it rewarding to have unprotected intercourse, and to have children. Therefore, one possible explanation for the predominance of nontraditional women in this sample would be that very few traditional women are engaging in premarital intercourse (i.e., sexually active). For this study, questionnaires were administered to 130 young women, but only the responses of the 77 sexually active women were analyzed. It seems quite possible that the virgin women, whose responses were not analyzed, were predominantly traditional in sex role orientation.

The possibility that traditional women would not be engaging in premarital intercourse at all was considered by the researcher before this project was initiated. It seemed like a very real possibility given the stereotype of the truly traditional woman. However, the literature on adolescent pregnancy suggests that adolescent women who become mothers are generally traditional in sex role orientation. This data, and the data on the increased level of sexual activity among young women today, seemed to suggest that both traditional and nontraditional women are engaging in premarital intercourse. This assumption, in turn, led to the present study of contraceptive use. So, while it is possible that traditional women do not generally engage in premarital intercourse, the assumption of this study was that both traditional and nontraditional women do engage in premarital intercourse.

The second explanation for the large number of nontraditional women in the sample revolves around the idea that while both traditional and nontraditional women are engaging in premarital sexual intercourse, only nontraditional women were willing to admit their sexual activity, and were willing to participate in this study. Sexually active traditional women may have felt too threatened by the research procedures (which involved facing the researcher to obtain the questionnaire and filling out the questionnaire in the presence of the researcher and other students) to participate. Several women did, in fact, express their feeling that they would have much preferred never having to face the researcher to obtain the questionnaire. In light of this revelation, it may be speculated that the method of questionnaire distribution inhibited the more traditional women from participating in this study.

The more traditional women may have also felt more embarrassed to admit their sexual activity, and less willing to acknowledge this activity by filling out a questionnaire which they already knew would ask questions about sexuality and contraceptive use.

A third explanation for the fact that subjects' responses on the AWS resulted in the vast majority being classified as nontraditional, could be the fact that all subjects were drawn from a college population. It could be that college attendance, in and of itself, acts as a strong filter in favor of career-oriented, nontraditional women. Furthermore, because this study was administered at a technologically oriented institution, it may be postulated that a stronger filter operates here than may be true at other less technical schools. So, in a sense, using a college population of young women may have predisposed the sample in favor of nontraditional sex role orientations.

A fourth explanation for the overwhelming nontraditionality of subjects may be that the AWS is out of date and is not an accurate assessment of sex role orientation today. The AWS is based largely on attitudes about women's roles in society, and about what is acceptable behavior for men and women. While it was certainly rather non-traditional for women several years ago to have full-time careers (rather than jobs); to be hired and paid on a similar basis as men; to participate in government and the professions; and to choose a career over childbearing; this may no longer be true. It can be speculated that even very traditional women have been touched by the tenets of the Women's Liberation Movement. Indeed, the society as a whole has become somewhat more nontraditional, as evidenced by new

divorce laws, child custody laws, and affirmative action regulations. Furthermore, it can be speculated that few college women today have grown up with mothers who were full-time homemakers, and, if present trends continue, even fewer will experience this situation in the future. Of the women in this study, 24% (N = 16) had mothers who never worked while they were growing up, while 29% (N = 22) had mothers who worked 11-20 years while they were growing up. Furthermore, the lines distinguishing acceptable behavior for men and women seem to be fading and becoming less distinct. Indeed, many people are advocating this concept of androgyny, whereby the best traits of the stereotypic masculine and feminine personality are combined into one personality. In terms of sex role orientation, the attitudes and behaviors which still seem to distinguish men from women, and traditional women from nontraditional women, are related to sexual activity. Therefore, future measures of traditionality and nontraditionality may need to rely much less heavily on work roles and attitudes about equality of opportunity outside the home, and much more heavily upon role flexibility and assessment of attitudes and behaviors related to sexuality and intercourse.

There are also several possible reasons why subjects in this study were predominantly internal in locus of control. Once again it may be that college acts as a filter, so that women who believe they can influence events, and the outcome of events in their lives, may be the women choosing to enter college. Women with an external locus of control (those who perceive their destiny as being in the hands of luck, fate, chance, or as merely beyond their control) may be less likely to

put their time, energy, and financial resources into an endeavor like a college education. Therefore sampling from a college pool may have predisposed the subjects toward an internal locus of control.

The procedures used for administering the questionnaire to participants undoubtedly also contributed to the sampling bias in favor of more internal women. In order to fill out the questionnaire, subjects were required to meet the researcher at a given time, at a given place. Unfortunately the days chosen were some of the few bright, sunny, warm days of the whole spring season. Perhaps only internals felt the motivation to participate in the study, and the determination to take responsibility for this decision.

When this research project was originally proposed, questionnaires were to have been sent out through campus mail for respondents to fill out individually. Then the questionnaires were to have been returned to the researcher through campus mail. It was believed that this would have been the best method of data collection as it would have ensured the subject's anonymity, eliminated the need for the researcher to ever see the faces of participants, and eliminated any stigma or peer pressure associated with going to a central location to fill out a questionnaire on sexuality and contraceptive use.

This procedure, however, was modified at the request of a university committee in charge of protecting the interests of subjects. As mentioned above, it is the author's belief that the required method of data collection may have adversely influenced the outcome of the study.

### Suggestions for Future Research

In any future study of these variables, it would be advisable to draw subjects from a much broader pool of subjects. Either using all classes of undergraduate women (rather than restricting the sample), or using a broad community based sample would allow for more heterogeneity within the sample. Furthermore, a truly anonymous method of data collection would be much preferable to the current method - whether a mail-out questionnaire, individual interview, or some other method would be best, remains to be determined.

With such a heterogeneous sample it should also be possible to determine the accuracy of the PPI in predicting likelihood of pregnancy. Unfortunately it was not possible to pilot test the measure adequately with this sample. This researcher, however, strongly believes in the potential value of this measure in assessing pregnancy protection. A study of just the PPI and it's ability to predict pregnancy likelihood is called for. It was most interesting to note that the mean PPI score for subjects in this study was .86247, indicating that, for the group as a whole, there was an 86% chance of avoiding pregnancy , and a 14% chance of becoming pregnant in a year. At the same time, 13.5% of the subjects indicated that they had been pregnant. Although it is unknown if these subjects were pregnant in the last year or not, or if this comparison is a "wild and irrepeatable coincidence" or not, it is still very intriguing that the PPI correctly indicated the amount of pregnancy for this group of subjects.

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APPENDIX A  
ATTITUDE TOWARD WOMEN SCALE

## QUESTIONNAIRE ONE

The statements listed below describe attitudes toward the role of women in society which different people have. There are no right or wrong answers, only opinions. You are asked to express your feelings about each statement by indicating whether you agree strongly, agree mildly, disagree mildly, or disagree strongly. Please circle the letters indicating your choice.

AS = Agree Strongly    AM = Agree Mildly    DM = Disagree Mildly    DS = Disagree Strongly

- AS AM DM DS 1. Swearing and obscenity is more repulsive in the speech of a woman than a man.
- AS AM DM DS 2. Women should take increasing responsibility for leadership in solving the intellectual and social problems of the day.
- AS AM DM DS 3. Both husband and wife should be allowed the same grounds for divorce.
- AS AM DM DS 4. Telling dirty jokes should be mostly a masculine prerogative.
- AS AM DM DS 5. Intoxication among women is worse than intoxication among men.
- AS AM DM DS 6. Under modern economic conditions with women being active outside the home, men should share in household tasks such as washing dishes and doing the laundry.
- AS AM DM DS 7. It is insulting to women to have the "obey" clause remain in the marriage service.
- AS AM DM DS 8. There should be a strict merit system in job appointment and promotion without regard to sex.
- AS AM DM DS 9. A woman should be as free as a man to propose marriage.
- AS AM DM DS 10. Women should worry less about their rights and more about becoming good wives and mothers.
- AS AM DM DS 11. Women earning as much as their dates should bear equally the expense when they go out together.
- AS AM DM DS 12. Women should assume their rightful place in business and all the professions along with men.
- AS AM DM DS 13. A woman should not expect to go to exactly the same places or to have the same freedom of action as a man.
- AS AM DM DS 14. Sons in a family should be given more encouragement to go to college than daughters.
- AS AM DM DS 15. It is ridiculous for a woman to run a locomotive and for a man to darn socks.

AS = Agree Strongly    AM = Agree Mildly    DM = Disagree Mildly    DS = Disagree Strongly

- AS AM DM DS 16. In general, the father should have greater authority than the mother in the bringing up of children.
- AS AM DM DS 17. Women should be encouraged not to become sexually intimate with anyone before marriage, even their fiances.
- AS AM DM DS 18. The husband should not be favored by law over the wife in the disposal of family property or income.
- AS AM DM DS 19. Women should be concerned with their duties of childrearing and housetending, rather than with desires for professional and business careers.
- AS AM DM DS 20. The intellectual leadership of a community should be largely in the hands of men.
- AS AM DM DS 21. Economic and social freedom is worth far more to women than acceptance of the ideal of femininity which has been set by men.
- AS AM DM DS 22. On the average, women should be regarded as less capable of contribution to economic production than are men.
- AS AM DM DS 23. There are many jobs in which men should be given preference over women in being hired or promoted.
- AS AM DM DS 24. Women should be given equal opportunity with men for apprenticeship in the various trades.
- AS AM DM DS 25. The modern girl is entitled to the same freedom from regulation and control that is given to the modern boy.
- AS AM DM DS 26. Women have an obligation to be faithful to their husbands.
- AS AM DM DS 27. The satisfaction of her husband's sexual desires is a fundamental obligation of every wife.
- AS AM DM DS 28. It is all right for wives to have an occasional, casual, extramarital affair.
- AS AM DM DS 29. There should be no greater barrier to an unmarried woman having sex with a casual acquaintance than having dinner with him.
- AS AM DM DS 30. Women should have full control of their persons and give or withhold sex intimacy as they choose.
- AS AM DM DS 31. If both husband and wife agree that sexual fidelity isn't important, there's no reason why both shouldn't have extramarital affairs if they want to.

APPENDIX B

Nowicki-Strickland Internal External Control Scale

## QUESTIONNAIRE TWO

Below are a number of statements. These statements are more about "life in general" than about any one specific topic. There are no right or wrong answers; these statements are intended to identify your feelings, attitudes, and opinions. The best way to answer is with your first reaction to the statement. You can simply check (✓) either YES or NO to record your responses.

1. Do you believe that most problems will solve themselves if you just don't fool with them? YES \_\_\_\_\_ NO \_\_\_\_\_
2. Do you believe that you can stop yourself from catching a cold? YES \_\_\_\_\_ NO \_\_\_\_\_
3. Are some people just born lucky? YES \_\_\_\_\_ NO \_\_\_\_\_
4. Most of the time do you feel that getting good grades means a great deal to you? YES \_\_\_\_\_ NO \_\_\_\_\_
5. Are you often blamed for things that just aren't your fault? YES \_\_\_\_\_ NO \_\_\_\_\_
6. Do you believe that if somebody studies hard enough he or she can pass any subject? YES \_\_\_\_\_ NO \_\_\_\_\_
7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway? YES \_\_\_\_\_ NO \_\_\_\_\_
8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do? YES \_\_\_\_\_ NO \_\_\_\_\_
9. Do you feel that most of the time parents listen to what their children have to say? YES \_\_\_\_\_ NO \_\_\_\_\_
10. Do you believe that wishing can make good things happen? YES \_\_\_\_\_ NO \_\_\_\_\_
11. When you get punished does it usually seem it's for no good reason at all? YES \_\_\_\_\_ NO \_\_\_\_\_
12. Most of the time do you find it hard to change a friend's (mind) opinion? YES \_\_\_\_\_ NO \_\_\_\_\_
13. Do you think that cheering more than luck helps a team to win? YES \_\_\_\_\_ NO \_\_\_\_\_
14. Do you feel that it's nearly impossible to change your parent's mind about anything? YES \_\_\_\_\_ NO \_\_\_\_\_
15. Do you believe that your parents should allow you to make most of your own decisions? YES \_\_\_\_\_ NO \_\_\_\_\_
16. Do you feel that when you do something wrong there's very little you can do to make it right? YES \_\_\_\_\_ NO \_\_\_\_\_

17. Do you believe that most people are just born good at sports? YES \_\_\_\_\_ NO \_\_\_\_\_
18. Are most of the people your age stronger than you are? YES \_\_\_\_\_ NO \_\_\_\_\_
19. Do you feel that one of the best ways to handle most problems is just not to think about them? YES \_\_\_\_\_ NO \_\_\_\_\_
20. Do you feel that you have a lot of choice in deciding who your friends are? YES \_\_\_\_\_ NO \_\_\_\_\_
21. If you find a four leaf clover do you believe that it might bring you good luck? YES \_\_\_\_\_ NO \_\_\_\_\_
22. Do you often feel that whether you do your homework has much to do with what kind of grades you get? YES \_\_\_\_\_ NO \_\_\_\_\_
23. Do you feel that when a person decides to hit you, there's little you can do to stop him or her? YES \_\_\_\_\_ NO \_\_\_\_\_
24. Have you ever had a good luck charm? YES \_\_\_\_\_ NO \_\_\_\_\_
25. Do you believe that whether or not people like you depends on how you act? YES \_\_\_\_\_ NO \_\_\_\_\_
26. Will your parents usually help you if you ask them to? YES \_\_\_\_\_ NO \_\_\_\_\_
27. Have you felt that when people were mean to you it was usually for no reason at all? YES \_\_\_\_\_ NO \_\_\_\_\_
28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today? YES \_\_\_\_\_ NO \_\_\_\_\_
29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them? YES \_\_\_\_\_ NO \_\_\_\_\_
30. Do you think that people can get their own way if they just keep trying? YES \_\_\_\_\_ NO \_\_\_\_\_
31. Most of the time do you find it useless to try to get your own way at home? YES \_\_\_\_\_ NO \_\_\_\_\_
32. Do you feel that when good things happen they happen because of hard work? YES \_\_\_\_\_ NO \_\_\_\_\_
33. Do you feel that when somebody wants to be your enemy there's little you can do to change matters? YES \_\_\_\_\_ NO \_\_\_\_\_
34. Do you feel that it's easy to get friends to do what you want them to? YES \_\_\_\_\_ NO \_\_\_\_\_
35. Do you usually feel that you have little to say about what you get to eat at home? YES \_\_\_\_\_ NO \_\_\_\_\_

36. Do you feel that when someone doesn't like you there's little you can do about it? YES \_\_\_\_\_ NO \_\_\_\_\_
37. Do you usually feel that it's almost useless to try in school because most other people are just plain smarter than you are? YES \_\_\_\_\_ NO \_\_\_\_\_
38. Are you the kind of person who believes that planning ahead makes things turn out better? YES \_\_\_\_\_ NO \_\_\_\_\_
39. Most of the time, do you feel that you have little to say about what your family decides to do? YES \_\_\_\_\_ NO \_\_\_\_\_
40. Do you think it's better to be smart than to be lucky? YES \_\_\_\_\_ NO \_\_\_\_\_

APPENDIX C  
INDIVIDUAL BEHAVIOR QUESTIONNAIRE

QUESTIONNAIRE THREE

INDIVIDUAL BEHAVIOR QUESTIONNAIRE

Please answer each question below as honestly as you can and report only your own experiences and activities. All your answers are strictly confidential.

1. How many people, if any, have you dated in the last year? \_\_\_\_\_
  
2. Please indicate your current dating status:
  - \_\_\_\_\_ Not dating anyone
  - \_\_\_\_\_ Dating several people
  - \_\_\_\_\_ Dating one person more than others
  - \_\_\_\_\_ Dating only one person
  - \_\_\_\_\_ Living with nonmarital partner
  - \_\_\_\_\_ Engaged
  
3. Thinking back, at what age did you go out on your very first date? \_\_\_\_\_
  
4. How easy is it for you to talk with your parents about sex? Please indicate one response for your mother and one response for your father if possible.
 

	MOTHER	FATHER
Very easy or always easy . . . . .	_____	_____
Usually easy . . . . .	_____	_____
It depends on the issue - sometimes easy and sometimes hard . . . . .	_____	_____
Never easy . . . . .	_____	_____
Impossible . . . . .	_____	_____
Does not apply . . . . .	_____	_____
  
5. Please indicate which of the following sexual activities, if any, you have ever engaged in: (Check all that apply)
  - \_\_\_\_\_ holding hands
  - \_\_\_\_\_ kissing
  - \_\_\_\_\_ touching or fondling
  - \_\_\_\_\_ heavy petting (stimulation of genitals and breasts)
  - \_\_\_\_\_ petting to orgasm or ejaculation
  - \_\_\_\_\_ seeing each other nude
  - \_\_\_\_\_ oral sex
  
6. Have you ever had sexual intercourse or not?
  - \_\_\_\_\_ Yes, I have (Go on to question 7)
  - \_\_\_\_\_ No, I have not (Skip to question 22 on page 9)
  - \_\_\_\_\_ No answer
  
7. In your whole life about how many times have you had sexual intercourse?
 

_____ 1	_____ 3-4	_____ 10-20
_____ 2	_____ 5-10	_____ 20 or more
  
8. How old were you when you first had sexual intercourse?
 

_____ 13 or younger	_____ 16-17	_____ 20 or older
_____ 14-15	_____ 18-19	

9. When you have sexual intercourse, what are the reasons? (Check all that apply)
- my boyfriend and I both really want to  
 my boyfriend really wants to and I go along  
 I really want to and my boyfriend goes along  
 some boys won't take no for an answer  
 if I don't my boyfriend will find someone else  
 other girls my age are doing it  
 OTHER: \_\_\_\_\_
10. How many partners have you had sexual intercourse with during the last year?
- 0                       2                       4                       10 or more  
 1                       3                       5-9
11. For the last year please indicate how frequently, on the average, you engaged in sexual intercourse. (Check only one answer)
- Almost every day                       Once a month or less  
 Several times a week                       Almost never  
 Once a week                       Have not engaged in intercourse in the last year.  
 Several times a month
12. Have you ever used any method(s) of preventing pregnancy?
- Yes (Go on to question 12A)  
 No (Skip to question 13)
- 12A. Please indicate all method(s) you have ever used by marking them with a checkmark.
- Withdrawal or pulling out                       Rhythm or natural methods  
 Condom or rubber alone                       Diaphragm with jelly  
 Contraceptive foam alone                       IUD  
 Condom and foam together                       Birth control pills  
 Contraceptive jelly  
 OTHER (please specify): \_\_\_\_\_
13. Did you use a method of preventing pregnancy the first time you had intercourse?
- Yes, did (Go on to question 13A)  
 No, did not (Skip to question 14)
- 13A. Which method, or combination of methods, did you use at your first intercourse?
- Withdrawal or pulling out                       Rhythm or natural methods  
 Condom or rubber alone                       Diaphragm with jelly  
 Contraceptive foam alone                       IUD  
 Condom and foam together                       Birth control pills  
 Contraceptive jelly  
 OTHER (please specify): \_\_\_\_\_
14. In the last year, have you used any method of preventing pregnancy?
- Yes, have (Go on to question 14A)  
 No, have not (Skip to question 15)
- 14A. Please indicate the method(s) or combination of methods you have used in the last year to prevent pregnancy.
- Withdrawal or pulling out                       Rhythm or natural methods  
 Condom or rubber alone                       Diaphragm with jelly  
 Contraceptive foam alone                       IUD  
 Condom and foam together                       Birth control pills  
 Contraceptive jelly  
 OTHER (please specify): \_\_\_\_\_

15. Think now about your most recent intercourse experience. Did you use any method of preventing pregnancy?

- Yes, did (Go on to question 15A)  
 No, did not (Skip to question 16)

15A. What method, or combination of methods, did you use to prevent pregnancy at this most recent intercourse experience?

- |  |  |
|--|--|
| <input type="checkbox"/> Withdrawal or pulling out     | <input type="checkbox"/> Rhythm or natural methods |
| <input type="checkbox"/> Condom or rubber alone        | <input type="checkbox"/> Diaphragm with jelly      |
| <input type="checkbox"/> Contraceptive foam alone      | <input type="checkbox"/> IUD                       |
| <input type="checkbox"/> Condom and foam together      | <input type="checkbox"/> Birth control pills       |
| <input type="checkbox"/> Contraceptive jelly           |  |
| <input type="checkbox"/> OTHER (please specify): _____ |  |

16. When you have had sexual intercourse in the past, how often have you used birth control?

- always (Skip to question 18)  
 almost always (Go on to question 17)  
 75% of the time (Go on to question 17)  
 50% of the time (Go on to question 17)  
 25% of the time (Go on to question 17)  
 almost never (Go on to question 17)  
 never (Go on to question 17)

17. For those times you did have unprotected intercourse, please indicate the reason(s) why birth control methods were not used: (Check all that apply)

1.  I would like to get pregnant.
2.  Since I hadn't planned on having sex, I wasn't prepared.
3.  Contraceptives are too expensive.
4.  I don't know where to go to obtain contraceptives.
5.  Contraceptives are too premeditated - they ruin the spontaneity or romance.
6.  I'm afraid my parents might find my contraceptives and if they did they would be hurt.
7.  I won't get pregnant because I'm too young.
8.  My partner didn't want us to use contraceptives.
9.  I didn't want to use contraceptives.
10.  My parents would be angry with me if they knew I have had sexual intercourse.
11.  It's too embarrassing to go get contraceptives.
12.  I won't get pregnant because I have sex too infrequently.
13.  I just forget to use contraceptives.
14.  Contraceptives are too inconvenient, too much trouble, or no fun to use.
15.  I believe contraceptives are unnatural, dangerous, and/or unsafe.
16.  Using contraceptives would make sex less romantic.
17.  If I use contraceptives my partner may think I planned on having intercourse.
18.  It's too embarrassing to use contraceptives.
19.  I won't get pregnant because I only have intercourse at the "safe time of the month".
20.  It is immoral or wrong to use contraceptives.
21.  Contraceptives are more physically harmful than pregnancy.
22.  I won't get pregnant because I don't want to have a baby.
23.  I believe contraceptives don't always work.
24.  I'm willing to accept the consequences.
25.  OTHER (please specify): \_\_\_\_\_

18. How would you describe your relationship with your sexual partner the first time you had sexual intercourse? Was he: (Check one)
- a pick-up or casual date
- someone you dated often but to whom you were not emotionally attached
- someone with whom you were emotionally attached but not in love
- someone with whom you were in love
- someone with whom you were in love and planning to marry
- OTHER: \_\_\_\_\_
19. How would you describe your relationship(s) with your sexual partner(s) of the last year? (Check all that apply)
- a pick-up or casual date
- someone you dated often but to whom you were not emotionally attached
- someone with whom you were emotionally attached but not in love
- someone with whom you were in love
- someone with whom you were in love and planning to marry
- OTHER: \_\_\_\_\_
- have not had a sexual partner in the last year
20. How enjoyable would you say sexual intercourse has usually been for you? Has it been:
- extremely enjoyable
- somewhat enjoyable
- not too enjoyable
- not at all enjoyable
21. Have you ever been pregnant, or not?
- Yes, have (Go on to question 21A)
- No, have not (Skip to Questionnaire Four which begins on the next page)
- 21A. How many times have you been pregnant? \_\_\_\_\_
- 21B. What was the outcome of your pregnancy? (If you have been pregnant more than once, use a checkmark to indicate the outcome of each pregnancy)
- Did you:
- give birth to the baby and keep it
- give birth to the baby and put it up for adoption
- miscarry the baby
- have an abortion
- currently pregnant
- SKIP NOW TO QUESTIONNAIRE FOUR WHICH BEGINS ON THE NEXT PAGE
22. If you have never had intercourse which of the following factors have influenced your decisions? (Mark any and all reasons which apply to you.)
- |   |  |
|---|--|
| <input type="checkbox"/> Religious beliefs              | <input type="checkbox"/> No place to do it         |
| <input type="checkbox"/> Wanted to be married first     | <input type="checkbox"/> Fear of being caught      |
| <input type="checkbox"/> Haven't met the "right" person | <input type="checkbox"/> Parents don't approve     |
| <input type="checkbox"/> Fear of getting pregnant       | <input type="checkbox"/> Not drunk enough yet      |
| <input type="checkbox"/> I'm too young                  | <input type="checkbox"/> Scared                    |
| <input type="checkbox"/> Just don't want to             | <input type="checkbox"/> I'm not that kind of girl |
| <input type="checkbox"/> Against my personal values     | <input type="checkbox"/> Technical problems        |
| <input type="checkbox"/> Don't have a boyfriend         | <input type="checkbox"/> Oral sex seems safer      |

APPENDIX D

BIOGRAPHICAL HISTORY QUESTIONNAIRE



11. In what type of community, for the most part, did you spend your childhood and adolescence?

farm or rural area  
 small town - 2500 or less  
 medium-size town - 2500 - 25,000  
 large town - 25,000 - 100,000  
 urban-suburban community in metropolitan area of 100,000 or more

If you are not sure, please indicate the name of your town and state and it will be classified for you.

---

12. Where do you live now? Do you live in:

a dormitory - coed  
 a dormitory - female only  
 an apartment  
 a house  
 a trailer or mobile home  
 a sorority house  
 Other: \_\_\_\_\_

13. With whom do you live? Do you:

live alone  
 live with female roommate(s)  
 live with both male and female roommates  
 live with male roommate(s)  
 live with boyfriend  
 live with family member, but not my parents  
 live with parents  
 live with husband  
 Other: \_\_\_\_\_

14. Since coming to school how often do you see your family? Do you see them:

daily  
 weekly  
 twice a month  
 once a month  
 twice a term  
 once a term  
 less than once a term  
 once a year or less

15. Before you left for college did you live with:

both parents  
 mother only  
 father only  
 OTHER: \_\_\_\_\_

16. What was each of your parent's approximate gross income for 1979? (Please check one number for your father and one number for your mother)

	FATHER		MOTHER
a. None	_____	a.	_____
b. Less than \$4,999	_____	b.	_____
c. \$5,000 - \$9,999	_____	c.	_____
d. \$10,000 - \$14,999	_____	d.	_____
e. \$15,000 - \$19,999	_____	e.	_____
f. \$20,000 - \$29,999	_____	f.	_____
g. \$25,000 - \$34,999	_____	g.	_____
h. \$35,000 or more	_____	h.	_____
i. I don't know	_____	i.	_____
j. Does not apply	_____	j.	_____

17. What is your father's current occupation, if any? Please give type of job and in what kind of industry or business.

---

18. What is your mother's current occupation, if any? Please give type of job and in what kind of industry or business.

---

19. If your mother was ever employed, please indicate when she worked. Did she work: (Please indicate a response for each question)

	YES	NO	UNSURE	DOESN'T APPLY
While single?	_____	_____	_____	_____
While married but without children?	_____	_____	_____	_____
While children were preschool age?	_____	_____	_____	_____
While children were grade school age?	_____	_____	_____	_____
While children were high school age?	_____	_____	_____	_____
Always, regardless of the age of the children?	_____	_____	_____	_____
After children left home?	_____	_____	_____	_____
Only when financially necessary?	_____	_____	_____	_____

\_\_\_\_\_ Never employed (Skip to question 22)

20. Did she usually work full-time or part-time?  
 \_\_\_\_\_ full-time  
 \_\_\_\_\_ part-time

21. How many years, if any, did she work while YOU were growing up?  
 \_\_\_\_\_ years

22. Which of the following best describes how far you expect to go in school?  
 \_\_\_\_\_ I expect to graduate from a 2 year school or community college  
 \_\_\_\_\_ I expect to attend college for a while, but don't expect to graduate  
 \_\_\_\_\_ I expect to graduate from a 4 year college  
 \_\_\_\_\_ I expect to do professional or graduate study after college  
 \_\_\_\_\_ OTHER: \_\_\_\_\_

23. Do you plan to marry some day, or not?  
 \_\_\_\_\_ Yes, I do  
 \_\_\_\_\_ No, I do not  
 \_\_\_\_\_ Undecided  
 \_\_\_\_\_ Haven't thought about it

24. Do you plan to have children someday, or not?  
 \_\_\_\_\_ Yes, I do  
 \_\_\_\_\_ No, I do not (Skip to question 26)  
 \_\_\_\_\_ Undecided  
 \_\_\_\_\_ Haven't thought about it

25. If you were to have children, how many would you like to have? (Please indicate the number)  
 \_\_\_\_\_ children

26. When do you want to be employed? Do you want to be employed:  
 (Please check one reply for each question)
- |   | YES   | NO    | DOESN'T<br>APPLY |
|---|-------|-------|------------------|
| While single?                                     | _____ | _____ |                  |
| When you leave school?                            | _____ | _____ |                  |
| While married but without children?               | _____ | _____ |                  |
| While children are preschool age?                 | _____ | _____ | _____            |
| While children are grade school age?              | _____ | _____ | _____            |
| While children are high school age?               | _____ | _____ | _____            |
| Always, regardless of the age of the<br>children? | _____ | _____ | _____            |
| After children leave home?                        | _____ | _____ | _____            |
| Only when financially necessary?                  | _____ | _____ |                  |

27. Do you plan to pursue a "career" someday, or not?  
 \_\_\_\_\_ Yes, full-time career  
 \_\_\_\_\_ Yes, part-time career  
 \_\_\_\_\_ No career

28. Please circle a number from 1 to 5 to indicate how important each of the following things is to you.  
 Circle 1 if it is very important to you.  
 Circle 5 if it is very unimportant to you.

		Very <u>Important</u>			Very <u>Unimportant</u>
A fulfilling career . . . . .	.1	2	3	4	5
Having or raising children. . . . .	.1	2	3	4	5
A fulfilling relationship with a man. . . . .	.1	2	3	4	5
Marriage. . . . .	.1	2	3	4	5
Both a career and marriage. . . . .	.1	2	3	4	5

29. Now please rank these same items using the letters "A", "B", "C", "D", AND "E".  
 The MOST IMPORTANT item should be labeled "A"  
 The LEAST IMPORTANT item should be labeled "E"  
PLEASE USE EACH LETTER ONLY ONCE.

- \_\_\_\_\_ A fulfilling career  
 \_\_\_\_\_ Having or raising children  
 \_\_\_\_\_ A fulfilling relationship with a man  
 \_\_\_\_\_ Marriage  
 \_\_\_\_\_ Both a career and marriage

30. Please circle one number on the line below to indicate, in general, what or whom you believe is in control of events in your life.  
 The lowest number, "0", indicates that you believe luck, fate, chance, or God is totally in control of the outcome of events in your life.  
 The highest number, "6", indicates that you believe you are totally in control of the outcome of events in your life.

Luck, fate, chance, or God is <u>totally</u> in control of the outcome of events in my life.	0   1   2   3   4   5   6	I am <u>totally</u> in control of the out- come of events in my life.
---	---------------------------	--

31. What do you think you will be doing when you are your parent's age?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

32. What would you like to be doing when you are your parent's age?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

THANK YOU VERY MUCH FOR YOUR PARTICIPATION IN THIS RESEARCH PROJECT.

APPENDIX E  
LETTER TO SUBJECTS

School of  
Home Economics



Corvallis, Oregon 97331 (503) 754-3551  
Family Life Department - 754-4765

#### STUDY OF FRESHMAN WOMEN STUDENTS

In order to better understand the needs of young college women today teachers, counselors, physicians, and others working with students need accurate information on your attitudes, behaviors, and experiences. You can help by participating in a research study which focuses on the dating experiences, sexual attitudes, and behaviors of college women today. All that is required of you is completion of a questionnaire. This questionnaire will not be coded and cannot be traced back to you by anyone. This study is part of my graduate work in Family Life and I hope you will take the time to participate.

Your name was randomly selected from a list of all freshman women enrolled at Oregon State University, spring term, 1980, and so I'm asking for your help. You are a vital part of the sample, and your participation is essential to ensure the accuracy of the study.

There are four parts to the questionnaire. The first two parts deal with attitudes about women and about life in general. The third part asks about dating, sexual behavior, and contraceptive (birth control) experiences. The last part asks about your background, future plans, and goals. No other information will be requested.

Dating and sexual behavior are very personal and sensitive subjects, so I want to assure you that information gathered here is strictly confidential and will be used for research purposes only. No names will ever be attached to your answers. Upon completion of the questionnaire you will be asked to seal the questionnaire in an envelope before turning it in. I will be the only person reading the responses. Results will be tabulated, by computer, for the entire sample, not for any one person.

Enclosed please find a notice indicating when I will be at your dormitory to administer the questionnaire. All you need to do is bring this letter and your signed consent form with you when you come. (The Oregon State University human subjects committee requires a signed consent form in order to protect you and ensure that you have been properly informed about the study.) It should take you about 20 minutes to complete the questionnaire. Questionnaires will be anonymous - no names or identifying numbers will be attached to your answers. Furthermore, your participation is voluntary. You are free to withdraw at any time and to refuse to answer any questions. (If you choose not to participate, please mark the box on the next page and return that page - and your name - to me through campus mail. It is important to include your name so I don't contact you again concerning the study.)

Please feel free to call me or my adviser, Dr. Arthur Gravatt, if you have any questions concerning the study, or if you are unable to meet me at any of the designated times. Our campus phone number is 754-4765. Thank you for helping me in this very important study.

Sincerely, /

Jacqueline L. Moore  
Master of Science Candidate, Family Life Dept.

I choose to participate in this study.  
(Bring this consent form with you when you come to fill out the questionnaire.)

OREGON STATE UNIVERSITY

DEPARTMENT OF FAMILY LIFE

CONSENT FORM

RESEARCH STUDY OF FRESHMAN WOMEN

I understand that all responses will be kept confidential, that I am free to refuse to answer any questions, and that I may withdraw my consent and discontinue participation in this project at any time.

I also understand that participation in this project is voluntary and entails only the completion of a questionnaire.

I hereby give my consent to participate in this project.

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNATURE OF PARTICIPANT

-----

I choose NOT to participate in this study.

\_\_\_\_\_  
DATE

\_\_\_\_\_  
NAME (PLEASE PRINT)

\_\_\_\_\_  
NAME OF DORMATORY/COOPERATIVE (if applicable)

Please return this page to me through campus mail.  
Return it to: Jackie Moore, Family Life Department

\*It is important that you include your name so that I don't contact you again.

-----

If you are interested in being notified of my research findings, please print your HOME address in the space below.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## STUDY OF FRESHMAN WOMEN STUDENTS

For your convenience I will be at \_\_\_\_\_  
 Name of dormitory or cooperative  
 on \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_  
 Day Time Time  
 and on \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_  
 Day Time Time

The questionnaire will take about 20 minutes to complete. You can meet me anytime during the hours indicated above, but please allow yourself enough time to complete the questionnaire during this time period.

Also, please be sure to bring your consent form with you.

We can meet in the (\_\_\_ floor lounge, conference room, music room, dining room) during the times indicated.

IF YOU CANNOT MAKE IT AT THE TIME(S) LISTED ABOVE, PLEASE FEEL FREE TO MEET ME AT ONE OF THE OTHER LOCATIONS. HERE IS A LIST OF MY SCHEDULE FOR ADMINISTERING THE QUESTIONNAIRE.

PLACE (Dorm, Coop)	DAY	TIME	LOCATION
CALLAHAN HALL	Thursday, April 10	11:00 - 1:00 pm	Music Room
CALLAHAN HALL	Thursday, April 10	2:00 - 4:30 pm	Music Room
SNELL HALL	Thursday, April 10	5:00 - 7:00 pm	5th Floor Lounge
FINLEY HALL	Thursday, April 10	7:30 - 9:00 pm	Conference Room
SNELL HALL	Friday, April 11	2:45 - 5:30 pm	5th Floor Lounge
BUXTON HALL	Monday, April 14	3:30 - 5:30 pm	1st Floor Lounge
FINLEY HALL	Tuesday, April 15	11:30 - 1:30 pm	Conference Room
BUXTON HALL	Tuesday, April 15	3:00 - 5:00 pm	1st Floor Lounge
AZALEA HOUSE	Wednesday, April 16	6:30 - 8:30 pm	Dining Room

APPENDIX F  
FOLLOW-UP LETTER TO SUBJECTS

School of  
Home Economics



Corvallis, Oregon 97331 (503) 754-3551  
Family Life Department 754-4765

#### STUDY OF FRESHMAN WOMEN STUDENTS

This is to remind you that your name was chosen - by random methods - to participate in a study of the dating experiences, sexual attitudes, and behaviors of college women today. This is an important study and your response is essential to ensure the accuracy of it. Remember all that is required of you is completion of an anonymous questionnaire.

You can complete the questionnaire by going to the Family Life departmental office (room 314 in Milam Hall) any weekday from now until Friday, April 25 between the hours of 8:00 - 11:15 am, or 1:00 - 4:30 pm. If you still have the original letter and consent form I sent you, please bring them with you. If not, consent forms will be available in the department. When you give the secretary - either Debbie or Annie - your signed consent form, she will give you a questionnaire. You will need to fill out the questionnaire in the office and leave it there in a sealed envelope. This questionnaire usually takes about 20 minutes to complete. Please be sure to allow yourself enough time to complete it during the hours indicated above.

Thank you for your cooperation.

Sincerely,

Jackie Moore, Graduate Student  
Family Life Department

P.S. If you are not a freshman, but are under the age of 20, I would very much like for you to participate. Sorry for the confusion!

APPENDIX G

PPI PROGRAM FOR HAND CALCULATOR

## PPI PROGRAM

PROGRAM	DISPLAY	ACTION
P 1		
< 1000 MIN .7		
HLT	1000	Punch P 1
.99777 MIN 1		
.99895 MIN 2		
.99752 MIN 3		
.99949 MIN 4		
MR 3 MIN 5		
.99765 MIN 6		
.99814 MIN 7		
.99949 MIN 8		
.99959 MIN 9		
16 MIN .7		
HLT	16	Enter FOCU Score Press EXE
MIN .1		
11 MIN .7		
HLT	11	Enter FOI Score Press EXE
MIN .2		
.97724 x <sup>y</sup> ((1-MR.1)xMR.2) = MIN .4		

PROGRAM	DISPLAY	ACTION
1400 MIN .7		
HLT	1400	Enter N of Methods Used; Press EXE
INV X = 0 GO TO 2		
MIN 0		
MR.1 x MR.2 ÷ MR 0 = MIN .5		
LBL 1		
14 MIN .7		
HLT	14	Punch in the number of each method used; Press EXE
MIN .6		
MR.4 x INV IND MR.6 x <sup>y</sup> MR.5 = MIN .4		
INV DSZ		
GO TO 1		
LBL 2		
5 MIN 0		
LBL 3		
MR.4 x <sup>y</sup> 1 =		
PAUSE		
INV DSZ		
GO TO 3		
HLT		PPI Score (It blinks 5 times)

APPENDIX H  
MULTIPLE REGRESSION TABLE

STEPWISE REGRESSION  
OF AWS AND ANS-IE  
ON PPI

Independent Variable	Cum. $R^2$	R Sq Change	Significance
ANS-IE	.026	.026	.185
AWS	.038	.012	.283