DEVELOPMENT OF A THEORY OF

CONTRACEPTIVE PRACTICES AMONG

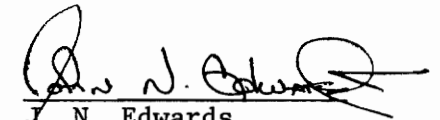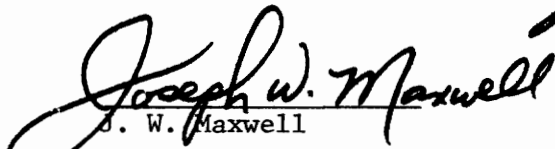SINGLE MALE AND FEMALE

COLLEGE STUDENTS

by

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Dissertation submitted to the Graduate Faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Management, Housing and Family Development

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August, 1978

Blacksburg, Virginia

Acknowledgements

The completion of this research would not have been possible without the guidance and encouragement of numerous people. The writer wishes to extend many words of thanks to his major professor, Dr. James Keller, for his scholarly insights, advice, and support. He has been, and remains, an excellent teacher and friend. The assistance offered by Drs. Maxwell, Protinsky, and Edwards has been an invaluable aid. Their advice has helped increase the quality of the writer's education as well as this research. A special word of appreciation is given to Dr. Hinkle whose enthusiasm and willingness to share in my learning has meant a great deal.

A word of thanks is given to Dr. Lee Wolfle whose knowledge in path analysis was of great assistance in carrying out this research. Also, it is doubtful if this project could have been carried out without the help of Mr. Charles Beller whose time given and support is acknowledged.

It is uncertain whether this study could have reached completion without the moral support and encouragement of the writer's friends and family. A great deal of appreciation is expressed towards Janet Oglethorpe, Robert Billingham, and Dianne Robertshaw for their help and listening skills.

Finally, the writer wishes to thank his family for their interest in my work and for their support. Their role in the completion of my four years of work cannot be overestimated.

The writer wishes to dedicate this research to a member of his family whose untimely death during the latter stages of the dissertation

was deeply felt. Elke Sack's dogged support and company was appreciated during all the junctures of my education. Her unconditional positive regard will be long remembered.

Table of Contents

List of Tables

CHAPTER I

Introduction

In recent years, increased attention has been focused on the contra-
ceptive practices of unmarried males and females. Descriptive data show
that a large percentage of high school females as well as college females
risk unwanted pregnancy on a regular basis (Bauman, 1970; Kantner and
Zelnik, 1977; Sack, 1974; Schofield, 1965). Kantner and Zelnik's nation-
al probability sample of 15-19 year old single females indicated 34 per-
cent failed to use contraception the last time they had sexual intercourse.
Only 30 percent of the females reported they always used some method of
contraception when engaging in premarital coitus. Sack's study of 222
unmarried college students revealed that 70 percent of the females and
only 50 percent of the males always use contraception.

A frequent result of failing to use a reliable method of birth
control is pregnancy. In 1975, the estimated illegitimacy rate for
teenagers 15-17 years of age was 13.1 per thousand (Ventura, 1977) and
the 18-19 age group had an illegitimacy rate of 32. In all, 52.1 percent
of all illegitimate births, or 222,500 children, were born to women under
20 years of age.

The failure to adequately prevent pregnancy often results in the
unmarried woman seeking an abortion. Data collected in 1975 from 33
states and the District of Columbia revealed 33.1 percent of the women
obtaining abortions were under 20 years of age (CDC, 1977). Information
from 30 states plus the District of Columbia indicated the percentage of
women receiving abortions who were single increased from 70.3 percent to
73.9 percent in 1975 (CDC, 1977). In 21 out of 32 areas reporting on the

1

number of abortions in 1975, more single women had abortions than live births. With a large number of single women becoming pregnant and some subsequently seeking abortions, a major question which arises is why so many run the risk of becoming pregnant.

Although it is clear that a large percentage of single males and females engage in coitus without using reliable methods of birth control, it is not fully clear why this is so. Along with descriptive data on the premarital use of birth control, there have been recent attempts at constructing theories which would explain the use of contraception among single persons. Rains (1971), for example, built her theory around the idea that ambivalence towards one's own sexuality can hinder one from using contraception. Rains believed that single females who are not fully acceptant of the fact that they are sexually active may be inhibited from using contraception.

Lindemann (1974) developed a three stage "birth control prescription process" which explains contraceptive usage among unmarried females. She stated that when a young female engages in a new sexual behavior such as coitus she needs to acquire a new self-concept. The girl needs to view herself as being sexually active, being able to reproduce, and in need of contraception.

A third theory of contraceptive usage by single females developed is a decision-making theory. Luker (1975) suggested that "unwanted pregnancy results from 'contraceptive risk-taking' behavior which is the result of conscious decision making" (p. 34). The woman is thought to weigh the costs of a specific action such as using a birth control device against the probabilities of any benefit that can be experienced

through that action. Luker assumed that the possible costs of using contraception have social, emotional, financial, and physical components.

Although all three of these theories are of merit, they have three shortcomings in common. First, all three of these theories were constructed from data gathered from very small samples. Rains' study included only 36 female students, and Luker's study consisted of 60 females. Second, none of the three authors subjected their data to any rigorous statistical procedures but rather heavily relied upon statements made by the subjects and subjective interpretation of these statements. Third, all three theories dealt either exclusively or primarily with females. Very little attempt has been made to construct and to statistically test a theory of contraceptive practices among unmarried males. Clearly, there is a need for such constructing and testing of a theory which explains contraceptive practices among males as well as females.

The Problem

Although in recent years more research investigating contraceptive practices among single persons, a limited amount of the literature has attempted to construct a theory of contraceptive behavior. Further, what theory construction has been attempted has dealt mainly with the female population. The purpose of this research was to construct and test a theory of contraceptive usage among single male and female college students. The independent variables included in this theory were those which have previously been shown to be influential in contraceptive practices among unmarried persons. From those specified independent variables, a causal model was built to represent the theory. The causal model was a diagrammatic representation of the theory. That is, the

causal model, or path diagram was used to "graphically display the pattern of causal relations among a set of variables" (Kerlinger and Pedhazur, 1973:307-308). The model showed the direct and indirect effects of certain variables (causes) upon other variables (effects). Identical models were developed for males and females. The models were then separately tested for males and females which allowed for the possibility of different theories of premarital contraceptive use to be developed.

Rationale for the Independent Variables

Level of Emotional Attachment

Research has been consistent in showing that the nature of the premarital dyad is influential in the use of contraception. Kirkendall (1961) studied 200 college aged males in terms of their sexual behavior and contraceptive behavior as well as the effect that premarital coitus had upon the male-female relationship. He reported that the greater the degree of emotional attachment the male had toward the female the more likely he was to use some type of contraceptive. Later studies have tended to support Kirkendall's findings. Fujita, Wagner and Pion (1973) found persons in relationships characterized as "steady" and "steadily" were more likely to use contraception than persons in relationships characterized as "casual" or "pick-up".

Furstenberg (1971) suggested that the nature of the premarital dyad may be the most influential factor in determining whether the couple uses contraception. He wrote that, in stable relationships, birth control is more likely to be used than in unstable relationships. In a stable relationship, the male is more likely to use a condom simply because he knows if sexual intercourse will occur. Also, in a stable

relationship the female has bargaining power and can use that power in urging the male to use a condom.

Later research has tended to support the findings of these fore-mentioned studies (Needle, 1973; Sack, 1974). Therefore, it seemed reasonable to suggest that the level of emotional attachment perceived by each partner in a premarital dyad is influential in the use of con-traception. This relationship was represented by Path A. The positive sign (+) denoted a positive association between the two variables.

```
┌─────────────┐   A(+)   ┌─────────────┐
│ Level of    │          │ Use of      │
│ Emotional   │ ───────► │ Reliable    │
│ Attachment  │          │ Contraception│
└─────────────┘          └─────────────┘
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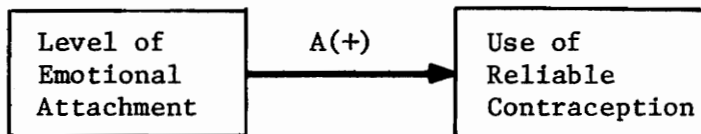
Frequency of Premarital Coitus

It appeared that the frequency which one engages in premarital sexual intercourse has a positive association with the use of reliable contraception. Kantner and Zelnik (1973) reported that 18 and 19-year-old unmarried females were more likely to have used a reliable method of birth control the more frequently they had coitus within the previous month. Furstenberg (1971) found that the degree of sexual activity for males and females had a positive influence on the use of contraception. Furstenberg stated that having sexual intercourse at irregular intervals had a discouraging effect upon the use of birth control. He also saw the effect of regularity of coitus and the degree of stability of the pre-marital dyad as having independent effects upon the use of birth control.

It was reasonable to expect that the more frequently sexual inter-
course occurs the more likely contraception would be used. The female
may be more willing to risk possible side effects of the pill, for
example, if she is having sexual intercourse frequently. If she is hav-
ing intercourse sporadically, she may either not want to bother with
contraception, or may believe she cannot get pregnant because she is
not exposing herself enough to a possible pregnancy (Shah, Zelnik, and
Kantner, 1975).

It was also reasonable to expect that the male who engaged in
sexual intercourse frequently would be more likely to seek out some
method of birth control such as the condom. It seemed logical that the
male who is currently sexually active and expects to continue to be
sexually active would be prepared to prevent a possible pregnancy. A
male who has coitus irregularly is more likely to find himself unpre-
pared on those occasions that he does have coitus. This relationship
was represented by Path B.

```
+----------------+  B(+)  +-----------+
| Frequency of   |------->| Use of    |
| Premarital     |        | Reliable  |
| Coitus         |        | Contra-   |
+----------------+        | ception   |
                          |           |
+----------------+ A(+)   |           |
| Level of       |------->|           |
| Emotional      |        |           |
| Attachment     |        +-----------+
+----------------+
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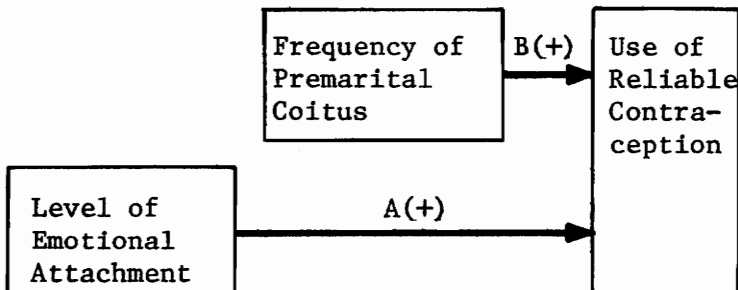
Further, it was expected that in relationships where there are
emotional attachments, sexual intercourse would occur more frequently
than in the case of having coitus with a pickup or a casual date. In

the latter two cases, the dating situations may or may not result in coitus. The female, for instance, may elect to have coitus with certain dates and not with others. The male, on the other hand, may not always find a female who is willing to have coitus. Yet, in relationships that are characterized as having emotional attachment and where coitus is already occurring, it is hypothesized to be occurring more frequently. This relationship was represented by Path C.
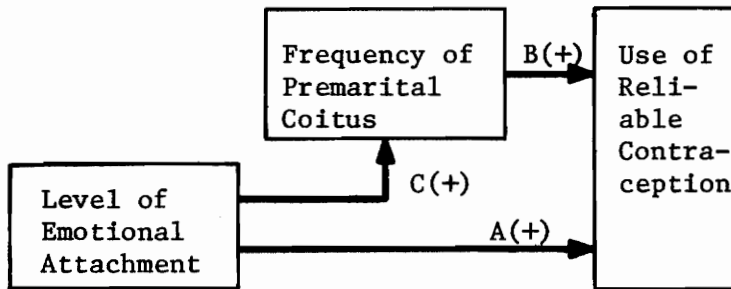
Frequency of Dating

It was felt that a variable intervening between "level of emotional attachment" and "frequency of premarital coitus" would be the frequency with which one dates. The more a person goes out on dates the more situations he is likely to find himself in where the opportunity to engage in coitus can arise. A person who dates once or twice a month will probably only have those two opportunities to have coitus. A person who dates more often would increase the chances of having premarital coitus. This relationship was represented in Path D.

```
┌─────────────────┐      ┌─────────────────┐      ┌──────────┐
│ Frequency of    │ D(+) │ Frequency of    │ B(+) │ Use of   │
│ Dating          │─────▶│ Premarital      │─────▶│ Reli-    │
│                 │      │ Coitus          │      │ able     │
└─────────────────┘      └─────────────────┘      │ Contra-  │
┌─────────────────┐         C(+)      ▲           │ ception  │
│ Level of        │───────────────────┘           │          │
│ Emotional       │              A(+)             │          │
│ Attachment      │──────────────────────────────▶│          │
└─────────────────┘                               └──────────┘
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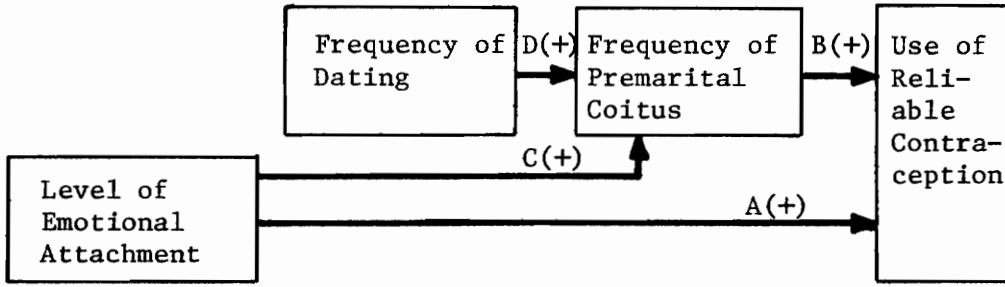
Further, it was hypothesized that couples who are in a relationship
where there is love and attachment are likely to see each other more
often than couples where there is a low level of emotional attachment.
This relationship was represented by Path E.

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              E(+)  ┌─────────────────┐ D(+) ┌─────────────────┐ B(+) ┌──────────┐
            ┌──────▶│ Frequency of    │─────▶│ Frequency of    │─────▶│ Use of   │
            │       │ Dating          │      │ Premarital      │      │ Reli-    │
            │       └─────────────────┘      │ Coitus          │      │ able     │
            │                                └─────────────────┘      │ Contra-  │
┌───────────┴─────┐         C(+)      ▲                               │ ception  │
│ Level of        │───────────────────┘                              │          │
│ Emotional       │              A(+)                                 │          │
│ Attachment      │───────────────────────────────────────────────▶ │          │
└─────────────────┘                                                   └──────────┘
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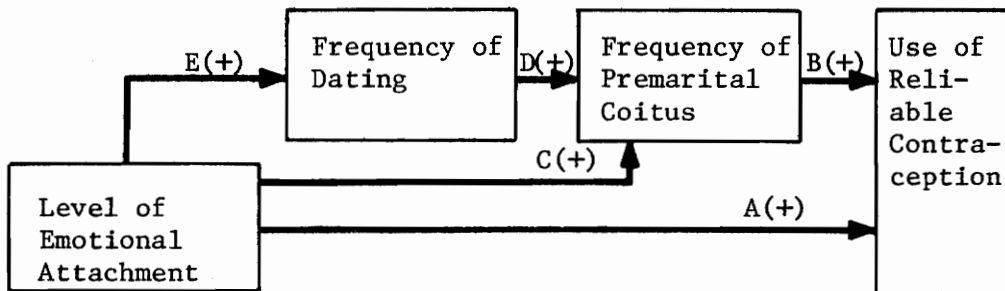
Expecting Coitus to Occur

A variable shown to influence the use of premarital contraception
was whether or not premarital intercourse is planned. Bauman (1970)
found that single college women who said their first coitus was planned
were more likely to have used a reliable contraceptive than women who
reported not having planned their first coitus. Sack (1974) also found
that unmarried college students who planned their first coitus were more

likely to have used a reliable form of birth control than students who did not plan. He found the same relationship among the students' most recent coitus.

The use of any reliable form of birth control involves some degree of preparation. Some methods of contraception such as the condom or spermicidal foam involve only a brief stop in the drug store. Other methods such as the pill, IUD, and diaphragm require a doctor's appointment which must usually be made in advance. Often, when either partner had not planned for intercourse and had not expected it to occur he may find himself having coitus without the use of a reliable contraceptive.

It was logical to assume that planning to have a specific act of coitus would have little effect upon the female who already uses the birth control pill or IUD because these methods are coitally independent. However, planning for intercourse is likely to be more influential when the method typically used by either the male or female is coitally dependent such as the condom, foam, or the diaphragm.

It was not clear in the previously mentioned studies whether the variable "planning to have intercourse" refers to a conscious and deliberate effort to plan coitus or whether it refers to the fact that the respondents expected intercourse to occur when it did. It appeared, however, that the researchers had the latter meaning in mind. This study employed the second meaning. It was hypothesized that the more likely one expects coitus to occur before it does, the more likely he will use a reliable form of contraception. This relationship was represented by Path F.
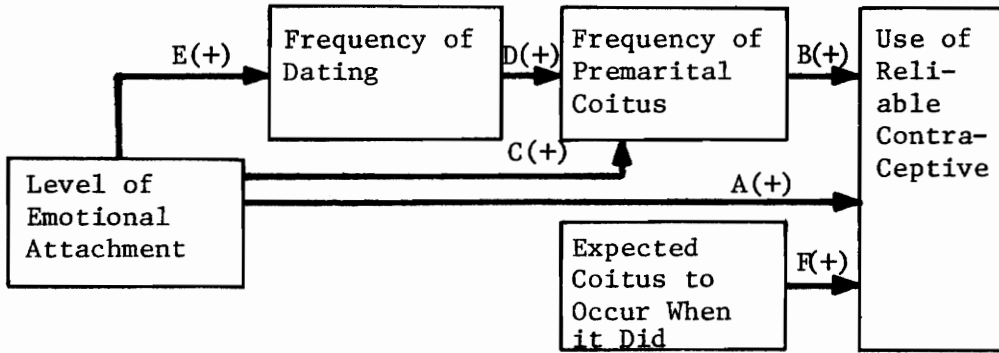
It seemed likely that partners in a relationship where there is emotional attachment would have more realistic expectations if and when coitus will occur (Furstenberg, 1971). If they have had coitus in the past, they would most likely have accurate expectations if it would occur again. In a relationship classified as either pickup or casual date, either partner may believe that intercourse will not take place and, therefore, not make preparations for it. Then, should intercourse occur, the male or the female would not be able to use a reliable form of birth control. This relationship was represented by Path G.
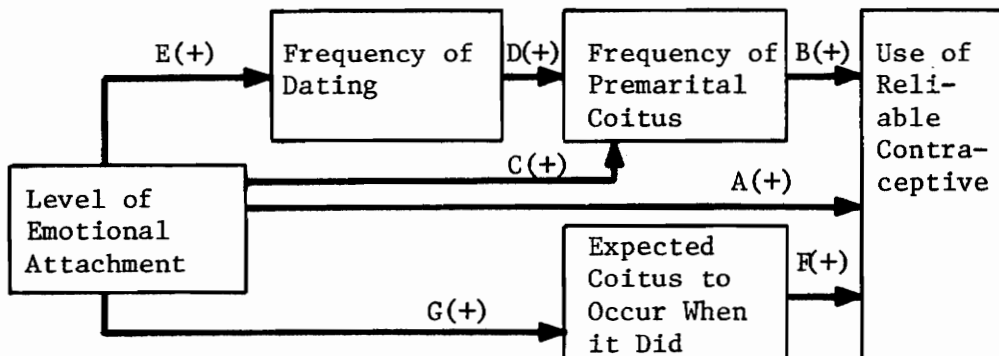
Also, it appeared likely that the more often one has had coitus recently, the more likely he had expected that his most recent intercourse would occur when it did. On the other hand, when one has had coitus infrequently he was probably less likely to have anticipated that the most recent coitus would have occurred when it did. This relationship was represented by Path H.
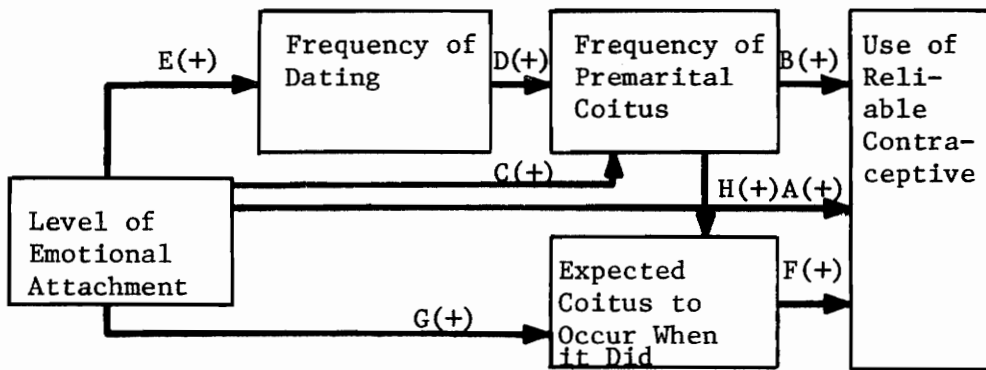
Sex Guilt

Recent studies have shown a relationship between the use of contraception and the degree to which a female accepts her own sexuality. It has long been thought that women who do not accept their own sexuality would find it difficult to use birth control (Flugel, 1947). For a woman to use birth control is not only a sign that one is a sexual person but also is an admission to herself and to others that she is or plans to be sexually active. This may be very difficult for some single women to admit in a society which has not openly accepted premarital coitus.

Goldsmith, Gabrielson, Gabrielson, Matthews, and Potts (1972) reported that a group of unmarried females who used birth control found

sexual intercourse more enjoyable than a group of single pregnant women. They suggested that finding was one indication that females who use birth control are more acceptant of their own sexuality than pregnant females. Reiss, Banwort and Foreman (1975) suggested that the key variable in influencing a female to use contraception may be an "acceptance of [her] own sexuality" (p. 628).

Among females, it was reasonable to assume that a valid indication of one's acceptance of sexuality would be the degree of sex guilt she has. A person who is acceptant of her own sexuality would likely have a lower level of sex guilt than a female who is not acceptant. With a positive relationship existing between acceptance of one's sexuality and the use of birth control, and a negative relationship suggested between sexual acceptance and sex guilt, it was hypothesized that a negative relationship was represented by Path I.
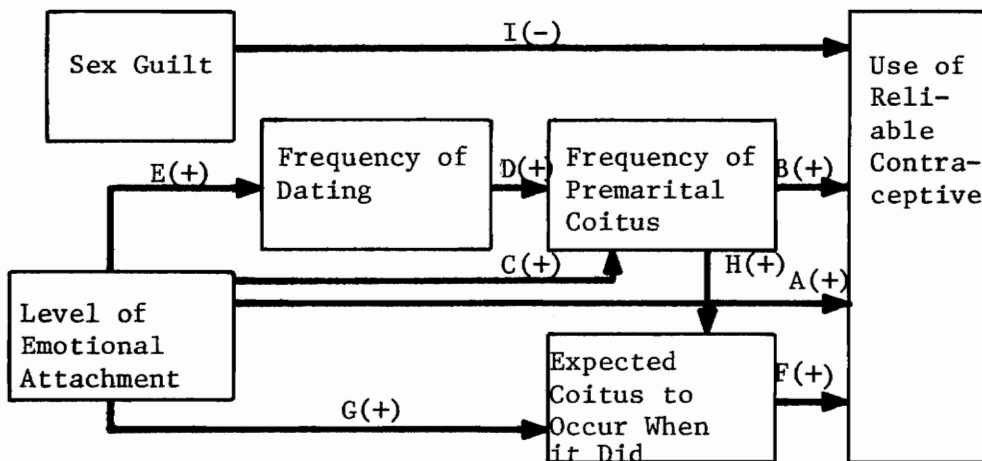
Although no literature was found investigating the relationship between a male's acceptance of his own sexuality and use of birth control of level of sex guilt, it was hypothesized that a similar relationship existed between sex guilt and use of birth control for males as for

females. That is, a male who has a high level of sex guilt would be less likely to use birth control than a male with a low level of sex guilt. This relationship was represented by Path I.

Finally, it was hypothesized that persons who had a high degree of sex guilt would date less frequently and engage less often in sexual behavior such as coitus than persons with low sex guilt. Although not investigating the relationship between sex guilt and frequency of sex behavior, Mosher and Cross (1971) found that among a group of single male and female college students those with high sex guilt engaged in less intimate forms of sexual behavior than less guilty students. It was expected that sex guilty students would attempt to avoid coitus as much as possible. These relationships were represented by Paths J and K.
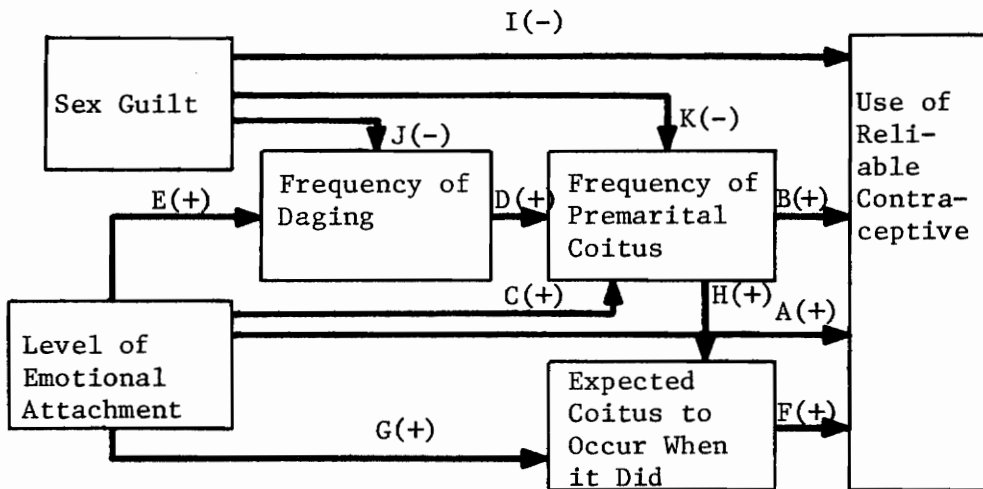
Religion

There appeared to be some association between premarital use of contraception and religion. Kantner and Zelnik (1973) found that teen-age girls who described themselves as Fundamentalist Protestants were the most unreliable users of birth control. Further, they found a

positive relationship between church attendance and use of birth control among black females but a negative association among white females.

Needle (1973) reported Jewish males were more likely to have used reliable birth control at both their first and most recent coitus than either Protestant or Catholic males. Catholic males were the most un-reliable. Needle also found Jewish females were more likely to have used a reliable contraceptive at their last coitus than Catholic or Protestant females. Catholic females were the most unreliable.

Although Needle found no relationship between religiosity and the use of contraception, the method of measuring religiosity was simply to ask the respondent how important religion was to him. The validity and reliability of this measure was seriously questioned. It seemed likely, however, that the degree of religiosity rather than the specific religion is the key variable in determining if a relationship exists between use of birth control and religion (Beard, 1973). This relationship was re-presented by Path L.
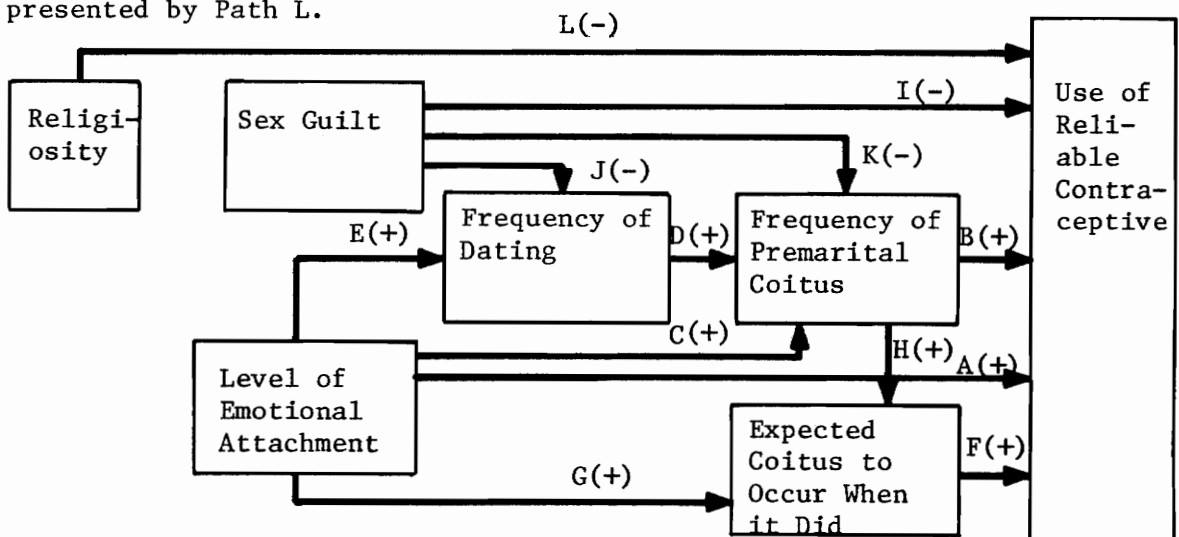
Lastly, it was expected that the more religious one is, the higher his level of sex guilt. Langston (1973), noting that the majority of

religions have restrictions placed on premarital chastity, reported find-
ing that college students who are religiously active are higher on sex
guilt than those students who are not religiously active or who state no
religious preference. This relationship was represented by Path M.
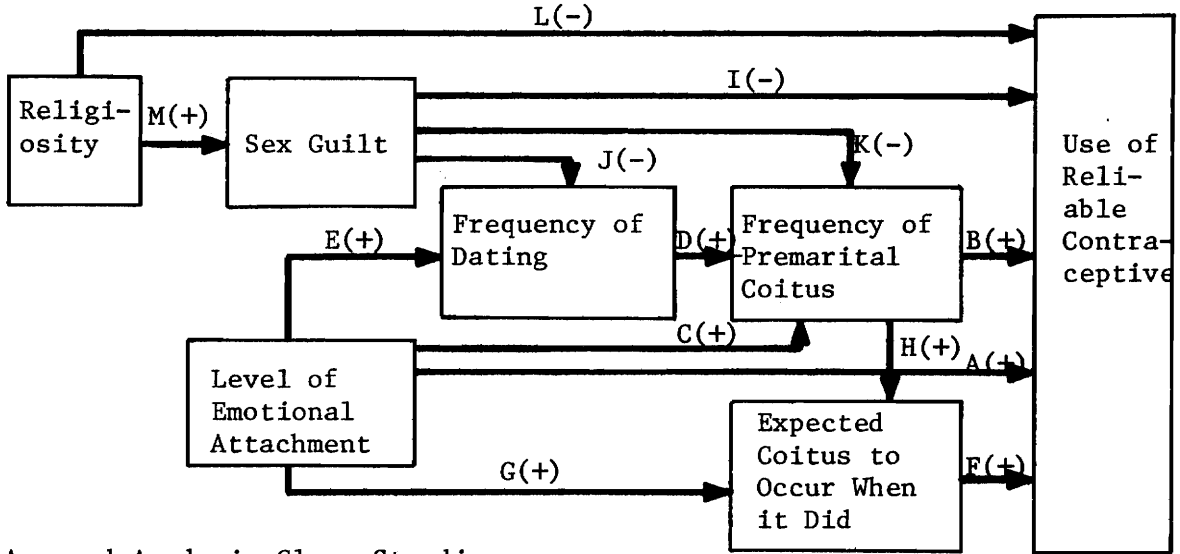
Age and Academic Class Standing

One's present age and academic class standing (freshman, sophomore,
etc.) appears to have positive effects upon the use of birth control.
Zelnik and Kantner (1977) found that the older the single female became,
the more likely she began using birth control. Needle (1973) found a
positive relationship between a student's current academic class stand-
ing and the use of a reliable method of contraception during his or her
most recent coitus. Beard (1973) also found a positive relationship
between a female's current age and being a low pregnancy risk. It was
hypothesized that the age of the respondent is positively related to the
use of reliable contraception. This relationship was represented by
Path N.

It was also hypothesized that the older the student, the more likely
he would be involved in a relationship characterized by high emotional

attachment. It was thought that older students would have had more time to become involved in a heterosexual relationship. This relationship was represented by Path P.
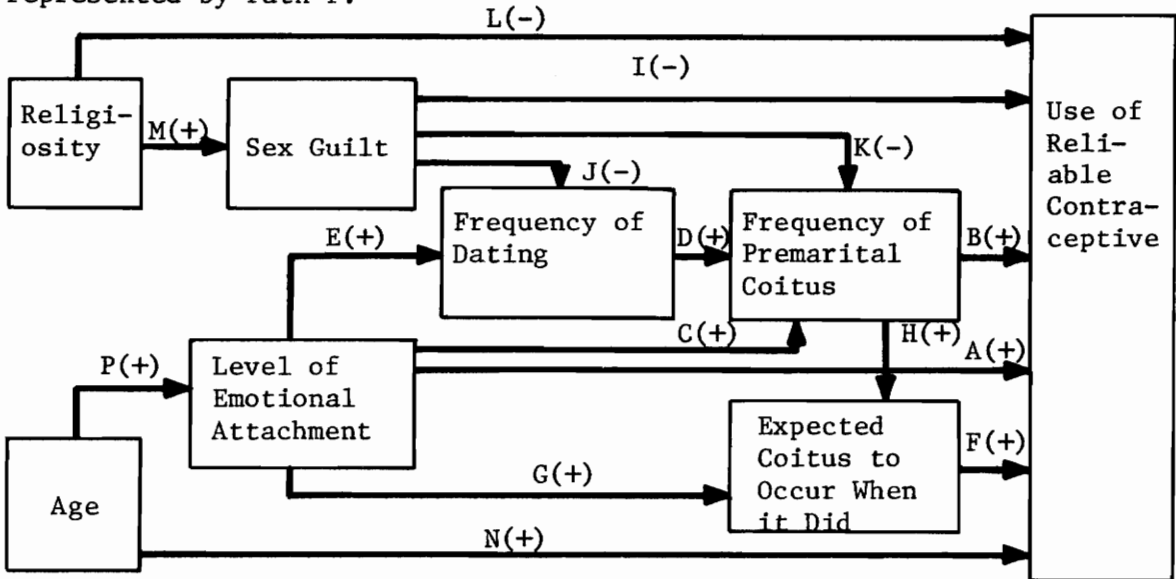
Length of Time

The length of time that the male and female have known each other was believed to be related to the level of emotional attachment. It was assumed that time is necessary for love to be developed. It was not expected that many couples who have known each other for a very short period of time would be considering marriage. This relationship was represented by Path Q.
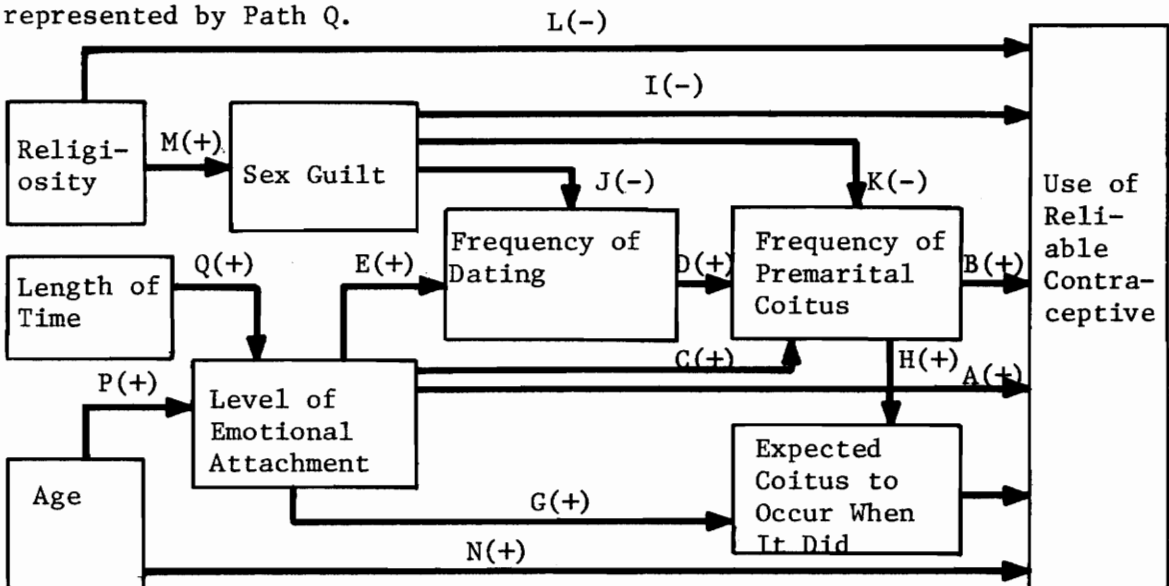
Reference Groups

Recent studies have shown there is an association between a student's reference groups and his premarital attitudes and sexual behavior. Mirande (1968) showed virgin college students were more likely to be associated with reference groups which disapproved of premarital coitus than non-virgin college students. He also reported that non-virgin students were more likely to be associated with reference groups that encouraged premarital coitus than virgin students.

Teevan (1972) found a positive relationship between a college student's own sexual experience and the perceived sexual experiences of his close friends. Students who had sexual intercourse perceived most of their close friends as also being sexually active. Students who were virgins tended to perceive their close friends as having little sexual experience.

Clayton (1972) found that the perceived sexual standards of that reference group seen as being the most important by a college student had a significant influence upon the male's sexual behavior. Such a relationship was not found for female college students.

There was limited evidence found which showed an association existing between use of contraception and perceived sexual experience of friends among male college students. Needle (1973) found males who perceived the majority of their close friends having coitus were more likely to have used a reliable method of contraception at their most recent coitus than males who thought most of their friends had not had sexual intercourse in college.

Luker (1975) suggested that one possible deterrent to using contra-
ception for single females is acknowledging to themselves and, more
significantly, to others that they are engaging in sexual intercourse.
Acknowledgement can be to the female's parents, her sex partner, or even
to an "abstract moral judge", such as the Catholic church (Luker, 1975:
44). By not using contraception, the woman can avoid the censure of
these significant others. In summary, Luker believed that women may
tend not to use contraception when they perceive disapproval from signi-
ficant others for engaging in premarital sexual intercourse. Although
Luker neglected to specifically discuss the situation where the female
perceives approval or support for engaging in premarital coitus, she has
acknowledged the influence that reference groups can have on a female's
contraceptive practices.

It seemed reasonable that engaging in coitus while most of one's
close friends either do not approve or are not sexually active them-
selves would be very difficult for many college students. Under these
circumstances the individual having coitus may have doubts about this
behavior and may not feel comfortable engaging in coitus. It was hypo-
thesized that these doubts can hamper the individual in seeking and
using adequate contraception. It was expected that the greater the
approval the respondent perceives from his close friends for engaging
in premarital coitus the more likely he or she is to use a reliable form
of contraception. This relationship was represented by Path R. Also,
it was hypothesized that the greater the number of close friends the
respondent perceives engaging in premarital coitus, the more likely he
uses a reliable form of contraception. This relationship was represented
in Path S.

19

Just as a student's perceptions of his friends' sexual norms and behaviors are thought to have an influence on his sexual behavior, it was hypothesized that they are influential on his use of contraception. It was hypothesized the greater the number of close friends the respondent perceives as always using contraception the greater the likelihood the respondent uses contraception. This relationship was represented by Path T.

With age, it is likely that one will have more friends who have had premarital coitus. It is also likely that due to maturation at college, older students will approve of premarital coitus more than younger students. Also, because use of contraception is positively related to age, it seemed logical that older students will have more close friends who use contraception regularly than younger friends. These three relationships were represented by Paths V, W, X, respectively.
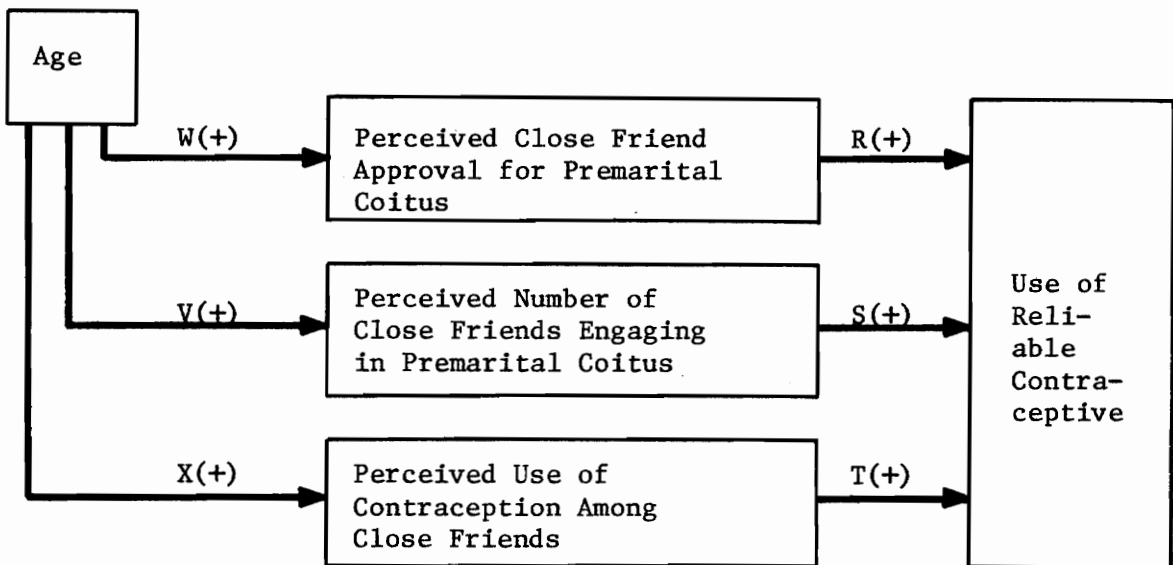
The complete theoretical model is shown in Diagram 1.

Diagram 1
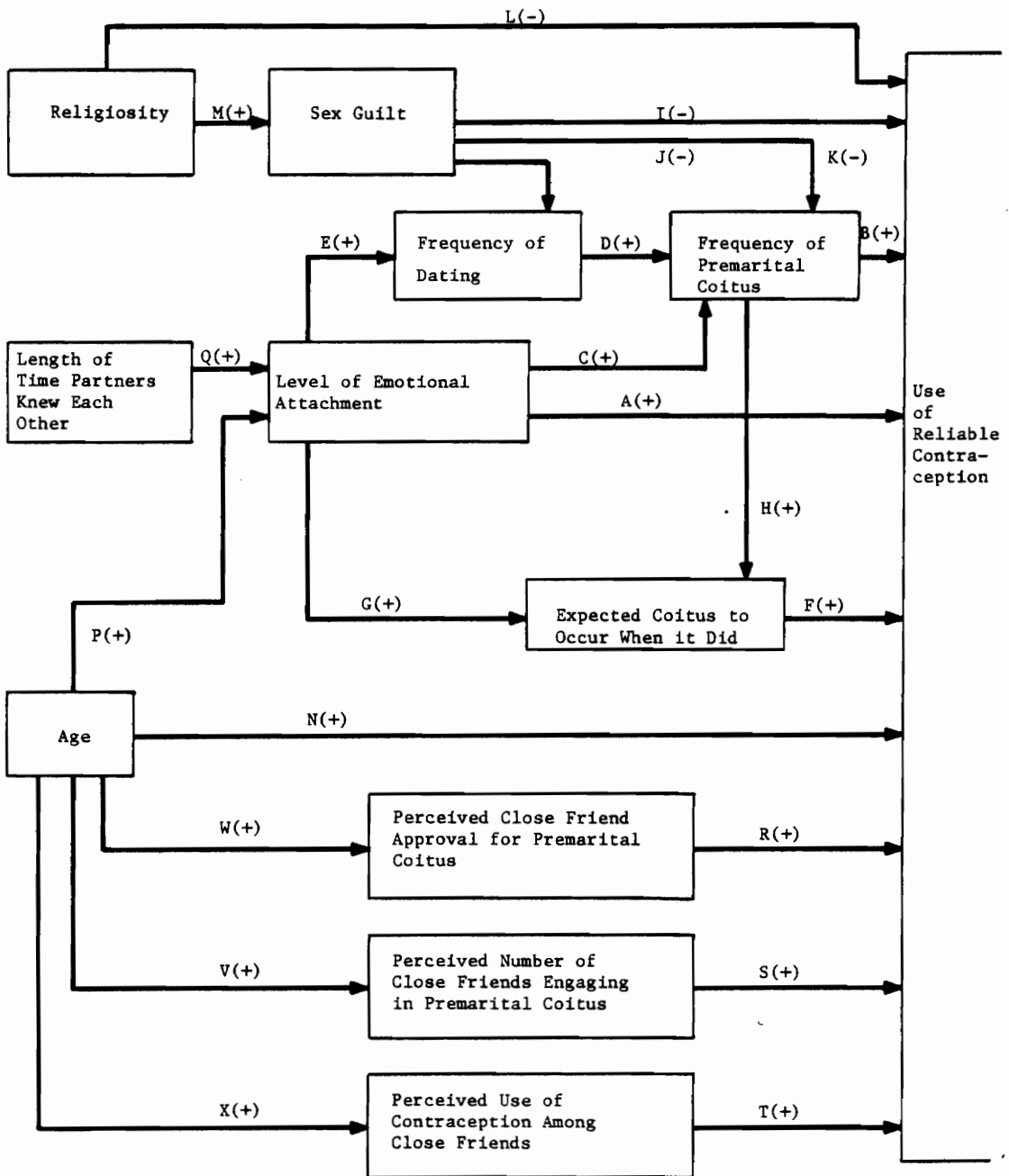
CHAPTER II

Review of Literature

Use of Contraceptives Among Unmarrieds

Kantner and Zelnik (1973) reported the contraceptive practices of

1,342 never-married sexually active women 15-19 years of age. This

sample was a subsample of a larger national sample of 4,611 females.

Kantner and Zelnik reported 53 percent of the 15 to 19-year-olds did

not use any type of contraception the most recent time they had coitus.

Among the 15-year-olds, 71 percent did not use a contraceptive the

latest time they had coitus, and among the 19-year-olds the figure was

41 percent. For the 15 to 19-year-old group, 19 percent reported

that they always used some type of contraceptive when having sexual

intercourse. Among those who reported sometimes using contraceptives,

the figure was 63 percent, with almost 16 percent of the 15 to 19-year-

olds having never used birth control. During the last intercourse the

condom was used by 14.4 percent of the females' partner. The pill was

the most common method of contraception used (15.1 percent). Withdrawal

was used by 11 percent of the women.

More recently Zelnik and Kantner (1977) reported 64 percent of the

females from a national probability sample of women 15 to 19 years old

used birth control the last time they had sexual intercourse. Further,

30 percent reported always using birth control. The proportion of

females reporting either always using contraceptives or having used a

contraceptive the last time having sexual intercourse increased from

Kantner and Zelnik's earlier study. However, the percentage of females

never having used birth control increased from 16 percent in 1973 to 26

percent in 1976

Zelnik and Kantner (1977) reported that of the methods of birth control used at last intercourse, the pill was used by 31 percent of the 15 to 19-year-olds. The condom was used by 13 percent and withdrawal by 11 percent. Comparing these results to Kantner and Zelnik's 1971 data revealed that twice as many females used the pill during their latest intercourse in 1976 than in 1971.

Finkel and Finkel (1975) reported on the sexual and contraceptive behavior of 421 male students from three high schools in a large northeastern city. The average age of the males was 16.3 years. The sample included 30 percent blacks, 38 percent Hispanics, and 32 percent whites. Finkel and Finkel found that 69 percent of the males had had sexual intercourse. Twenty-eight percent reported using a concom during their latest sexual experience. Another 30 percent reported using either withdrawal or douche. Twenty-five percent used no method of contraceptive.

Bauman (1970) randomly selected 100 male and 100 female students from a southeastern state university. All those selected were never-married undergraduates who ranged in age from 18 to 22 years. Five males and one female were 23 years of age or older. Ninety-eight males and 88 females were included in the final analysis of the data. The questionnaire was self-administered and was usually filled out at the student's place of residence. Bauman reported 17 of 51 males (34%) and 7 of 42 females (17%) used no contraceptives during their first intercourse. Nineteen males and 14 females used the condom. Only two students out of 93 reported using the pill during their first intercourse. When asked what type of contraceptive they usually used, six males and no females reported they used nothing. Twenty-eight males and 20

females reported using the condom. Four males and three females reported they usually used the pill.

Bauman and Wilson (1973) surveyed 107 males and 68 females who had been randomly drawn from the registrar's records at a southeastern state university. Questionnaires were self-administered and completed at the student's place of residence. All the students selected were white and unmarried. Forty-two percent of the males and 58 percent of the females reported they usually use the pill as a method of birth control. Six percent of the males and females reported usually using no method of birth control.

Sack (1974) administered a questionnaire to 359 undergraduate students at a large state university in Virginia. All students were currently enrolled in a human sexuality course. Only students who were never-married and sexually active were included in the analysis. The total number of usable questionnaries was 222. Fifteen percent of the males and seven percent of the females reported using no method of contraception the most recent time they had sexual intercourse. The most common type of contraception used was the pill which was used by 58 percent of the females. Forty percent of the males said their most recent sexual partner used the pill. Investigating the consistency of using contraception, 50 percent of the males and 70 percent of the females reported always using contraception (Sack, 1974).

It is evident that many high school and college students are engaging in premarital sexual intercourse and that many of them are risking possible pregnancy. Yet, there is very little available literature on why some females seek help concerning contraception and others

do not (Reiss et al., 1975). Recent studies, however, have indicated certain variables which appear to be related to the use of birth control. A review of these independent variables will now be undertaken.

The Level of Emotional Attachment and the Use of Contraception

Reiss (1960) suggested that males who subscribe to the orthodox double standard use condoms more for the prevention of venereal disease than prevention of pregnancy. These males are characterized as having little or no concern for their partners who feel that it is the girl's responsibility to protect herself from unwanted pregnancy. Reiss believed this lack of concern towards the female is a major factor in premarital pregnancies.

Individuals subscribing to the permissiveness without affection standard are believed to be rational about their sexual activities and would desire to avoid possible pregnancy (Reiss, 1960). These individuals are seen as being acceptant of premarital coitus and although there is no affection present there is respect for each other.

For couples subscribing to the single standard of permissiveness with affection, it is expected that there be precautions against pregnancy (Reiss, 1960). Each partner has a great deal of concern about the other and would not wish to harm the other in any way. Reiss noted, however, that although pregnancies are less likely to occur in this group, they do occur. One reason for this is the couple may become too confident in their ability to avoid pregnancy and be lulled into a sense of false security.

Lester Kirkendall (1961) interviewed 200 college men with respect to their sexual activities. The men ranged in age from 17 to 28 years

with a mean age of 20.6 years. He studied five characteristics he felt were important in determining the quality of the male-female relationship. They were motivations, communication, protective measures, attitudes toward responsibiilty, and self-evaluation. He also developed a continuum which was divided into six parts, or levels. The levels described the degree of emotional attachment the male had towards the female. The continuum ranged from no emotional attachment (Level I) to strong emotional attachment (Level VI).

Kirkendall assumed that those males who had some emotional attachment would be more interested in the welfare of their sex partners than males with no emotional attachment. He found that in Level I, intercourse with a prostitute, the responsibility for using contraceptives usually fell on the woman. The male's general attitude was viewed as one of no concern for the well-being of the woman. If the woman wanted to avoid pregnancy or contracting or transmitting venereal disease it was her responsibility to do so.

In Level VI, intercourse with one's fiancee, contraceptives were used more than in any of the other five levels. Responsible attitudes on the part of the male were expressed more than in the other levels. Kirkendall noted, however, that many males were not concerned with using contraceptives possibly because they were planning to marry soon anyway.

Kirkendall (1961) found the use of contraceptives to be related to the overall male-female relationship. He stated:

> contraceptive measures are more likely to be taken in relationships where there is a definite degree of attachment than in relationships where there is little or no attachment. (p. 285)

Fujita et al. (1973) developed four dating types which ranged from a "pick-up", who was a date in which no prior commitment had been made to the dating situation, to a "steady", who was a person one dated four or more times and had been dated exclusively. Fujita et al. studied 163 male and 283 female students who had been randomly selected from a large, northwestern university. Initial contact was made through a letter sent to each subject. A telephone call stating the purpose of the study followed. Data were gathered first through a written questionnaire and then a face-to-face interview. The average age of the males was 20.3 years and of the females 19.9 years. The majority of both sexes had completed two years of college work.

Fujita et al. found that the relationships classified as "steady" and "steadily" had a lower percentage of no contraceptive usage than relationships characterized as "casual" and "pick-up". They concluded that these findings supported Kirkendall's earlier finding that the use of contraception is related to the type of male-female relationship.

Furstenberg (1971) interviewed 337 unmarried pregnant adolescents at an outpatient clinic in Baltimore. Ninety-six percent of the girls were black and all were below 18 years of age. He also interviewed 306 of the mothers of these girls. He found that in families where mothers and daughters discussed the usage of contraceptives, the latter were more likely to have used them. This was true, however, only if the mother gave specific instruction in the use of contraceptives. If the mother's instruction was vague, the effect it had on the daughter's use of contraceptives was negligible. Furstenberg stated that

the mother, in the issue of contraception, reveals an aware-
ness that her daughter is or may be having sexual relations.
The girl in turn is allowed to define sex less as a spontaneous
and uncontrollable act and more as an activity subject to
planning and regulation. (p. 197)

Furstenberg (1971) also suggested that the nature of the couples'

relationship greatly influenced contraceptive practices. He suggested

the single most important factor in use of contraception was the degree

of involvement between the partners. He stated that because use of

contraception is related to the frequency of coitus, and coitus is more

frequent in ongoing relations, use of contraception is more likely in

these relations.

In terms of the male's position Furstenberg (1971) gave three

reasons why the male is more likely to use contraception in stable

relationships. First, the male may be more likely to have condoms

because he knows sexual intercourse is likely to take place. Second,

the male is less likely to view sexual intercourse as being spontaneous

and more likely to view sexual intercourse as something under his con-

trol. Third, in terms of bargaining, in a casual relationship the male

can ignore the female's request to use contraception. However, in an

ongoing relationship he is not as likely to resist the female's urging

him to use a contraceptive. In a temporary relationship, the female

has little power to persuade the male to use contraception.

In combining the factors of mother-daughter communication about

birth control and type of male-female relationship. Furstenberg found

69 percent of the daughters who had discussed birth control and were in

a stable relationship used contraception. For girls who were in a stable

relationship but received no instruction from their mothers, 22 percent

used contraception. There was no relationship between mother's instruction and daughter's use of birth control in temporary relationships.

Needle (1973) investigated the use and nonuse of contraception among college students. He administered questionnaires to 851 female and 791 male students at the University of Maryland during the fall, 1972. Most of the students were enrolled in elective health courses or sociology courses. Five hundred and ninety-four males and 551 females were sexually active. Over 40 percent of both males and females were in their senior year of college. Ninety-four percent of the sample was white.

Needle (1973) found inconsistent results with respect to the use of contraceptives and the level of emotional attachment. On the occasion of the individuals' first coital experience, 60 percent of the males and 61 percent of the females used no contraceptive or used an unreliable method (defined as withdrawal, the rhythm method, or douche). For females at first intercourse, Needle found no evidence to support the findings of Furstenberg (1971), Kirkendall (1961), and Reiss (1960) that the greater the involvement between sexual partners the more likely birth control is likely to be used. When controlling for the relationship between early and late starters in coitus and contraception, 60 percent of the females used either no contraception or an unreliable method regardless if they had affection or little or no affection for their partners. For males, it appeared that age rather than level of involvement was the determining factor in whether contraception was used. Males who began having coitus at a later age were more adequate in preventing possible pregnancy than males who began having coitus at an earlier age.

Needle (1973) asked the students about their contraceptive practices since coming to college. He found 76 percent of the males and 67.1 percent of the females said they or their partner did not use contraceptives regularly. For females, while the use of contraception was low, Needle reported "it is higher as the level of affection for the partner increases and is higher for females having sexual intercourse in college than in high school" (p. 101). Males were least likely to use contraceptives with pick-ups or casual dates. No relationship existed, however, between the other levels of affection and use of contraception.

During the most recent coital episode, Needle found 27.9 percent of the females and 32.8 percent of the males used either no contraceptives or an unreliable method. A comparison of the males' first coital experience with their last experience revealed an increase in "coitus with affection" and an even greater increase in the percentage of those who used a reliable contraceptive. Among females, there was no change in the percentage of those having sexual intercourse with a partner toward whom they had affection. There was, however, an increase in the percentage of females who used a reliable form of birth control from first coitus to the most recent sexual experience. Needle concluded that the level of affection was not a significant determinant of contraceptive behavior during the individual's most recent sexual experience.

Looking at the respondent's last sexual experience as a time-isolated incident, on the other hand, Needle found a significant relationship between the level of affection and use of a reliable contraceptive. For both males and females, the greater the emotional commitment the more likely a reliable form of contraception was used.

Guy Parcel's (1974) dissertation sought to determine what influence attitudes toward the personal use of premarital contraceptive behavior among single university students had on their use of birth control. Parcel collected data from 931 never-married university students who were enrolled in a required health education course. Of this sample, 401 males (62.1%) and 153 females (54.1%) had sexual intercourse. Each student in Parcel's study was assigned a birth control effectiveness index. This index was calculated on the basis of an effectiveness rating of each type of birth control device used by the student in the previous year and the percentage of times where each method was used. The range of scores on this index was 25 to 125.

The data revealed that there was no significant association between birth control effectiveness and the character of the male-female relationship. The mean score for the birth control effectiveness index among males who had no affection for their sex partner was 67.5; for those males who had affection for their partner the average score was 75.6. For males who made a commitment for marriage with their sex partner the mean score was 79.7. Respectively, the mean scores for females were 85.0, 88.4, 82.9.

McCance and Hall (1972) mailed 1,720 questionnaires to single female undergraduate students at a British university. Of the 1,552 questionnaires returned, 44 percent had sexual intercourse. During their initial intercourse, 47 percent used some method of contraception while 66 percent used some contraception during their latest intercourse.

McCance and Hall found an association between the degree of use of contraception and the nature of the male-female relationship. They wrote

that the more established the relationship, the greater was the percent-
age of occasions where contraception was used. Females who had inter-
course with their fiances during the six week period prior to the mail-
ing of the questionnaire, 70 percent used a contraceptive on all occa-
sions. Of those females who had intercourse with a "steady partner",
59 percent used a contraceptive on all occasions. Those females who
engaged in intercourse with "other" partners, only 39 percent used con-
traception on all occasions.

In summary, the findings are supportive of a relationship existing
between the level of emotional attachment and use of contraception.
This relationship appears to exist for males as well as females.

Frequency of Coitus and the Use of Contraception

One factor which appears to influence the use of contraception
among single males and females is the regularity with which they have
sexual intercourse. Kantner and Zelnik (1973) stated that one of the
greatest deterrents for using contraception was the episodic nature of
sex among teenagers. They found that those 18 and 19-year-old females
whose monthly frequencies of coitus were in the range of those reported
for married couples had levels of contraceptive use similar to those of
married couples. Further, two-thirds of those single females who had
intercourse six or more times in the past month used contraception the
latest time they had coitus. Forty-seven percent who had coitus less
frequently used contraception at their most recent coitus.

Furstenberg (1971) reported that the frequency of sexual activity
and the degree of stability of the male-female relationship had inde-
pendent effects on the use of contraception. He also found that when

both variables were taken together they had an even more powerful effect.
He stated:

> Of the respondents who reported both that they had coitus one
> or more times a week and that they maintained a continuous
> relationship with the father of their child, more than half
> had experience with contraceptives. Among those who reported
> that intercourse occurred at irregular intervals and in
> temporary liaisons, experience with birth control was rare.
> (p. 200)

Thiebaux (1972) found that regularity of having coitus contributed
to the use of contraceptives. He found that for 80 pregnant women in-
frequency of sexual relations was a major reason given for failing to
use contraception.

Lindemann (1974) cited that one reason for not using contraceptives
is the infrequency of sexual intercourse. She stated that when coitus
is infrequent a single female is likely to have thoughts about contra-
ception only when she does have intercourse. She is not likely to think
of using contraception soon after the sexual encounter. Further, the
female is likely to believe pregnancy is highly unlikely when coitus is
infrequent. Lindemann cited a study which supported this notion (Barret
and Marshall, 1969).

McCance and Hall (1972) found a positive relationship between the
frequency of sexual intercourse and the use of contraception. Of those
females who had intercourse once in the sex weeks prior to their receiv-
ing the questionnaire, 46 percent failed to use any contraception. Of
those females who had intercourse more than 12 times in that same six
week period, only 24 percent failed to use contraception on one or more
of those occasions.

Finally, Zelnik and Kantner (1977) found among teenagers that infrequent sexual intercourse can discourage continued use of contraception. They focused upon those females who used the pill as their most recent contraceptive. About one-third who did not have coitus in the past four weeks stopped using the pill. This figure compared to one-sixth of the women who stopped using the pill while remaining sexually active. In summary, it appears that the regularity with which females engage in sexual intercourse influences the use of contraception.

Planning to have Coitus and the Use of Contraception

A review of the literature showed that when sexual intercourse is planned by either the male or the female, a reliable method of contraception is more likely to be used than if sexual intercourse is not planned. Bauman (1970) reported that 75 percent of the males and 89 percent of the females in his study said their first sexual intercourse was not planned. He believed that this was one reason that certain contraceptive methods, such as the pill and the IUD, were infrequently used during the first intercourse. Bauman also found that women who said their first sexual intercourse was not planned were less likely to have used a reliable method of contraception than women who said their first intercourse was planned.

Bauman (1970) found no difference in the use of a reliable contraceptive during first coitus between men whose first intercourse was planned and those whose first intercourse was not planned. He attributed no difference due to the fact that the condom was extensively used by men who had not planned to have sexual intercourse. This method requires much less preparation than the situation where the female wishes to use the pill or IUD.

Schofield (1965) wrote that because premarital coitus is socially discouraged, when it does occur it is often unpremeditated. This was thought to be a major factor in the non-use of contraceptives among the teenagers studied by Schofield.

Sack (1974) reported that contraception was more likely to be used if the first sexual intercourse was planned. Of those students who planned their first coitus, 62 percent used a reliable form of contraception while those who did not plan their first coitus, 31 percent used a reliable form of contraception. During the most recent coitus, 87 percent who planned used a reliable method of contraception. Of those who did not plan, 66 percent used a reliable method.

In summary, it appeared that if coitus is planned, reliable contraception is more likely to be used than if coitus is not planned. However, the evidence is not conclusive. Bauman found no such relation for males and Sack failed to investigate the relationship separately for males and females.

Acceptance of Sexuality and the Use of Contraception

It has recently been found that the degree that the female accepts her own sexuality (Goldsmith et al., 1972) and her self-assurance (Reiss et al., 1975) is related to contraceptive practices. Earlier, Rainwater (1960) suggested that couples who accept their own sexuality also seem able to accept contraception more openly. A greater acceptance of sexuality and open discussion concerning ways to handle contraception is expected to lead to more reliable contraceptive usage.

Goldsmith et al. (1972) questioned 377 females below the age of 18. Two hundred and ten females were never-pregnant birth control users, 100

females were seeking abortion counseling, and 67 females were pregnant and residing in maternity homes. Goldsmith asked under what circumstances premarital intercourse would be acceptable. Four different categories were developed: 1) in marriage only; 2) for boys only; 3) if two people really love each other; 4) if two people are strongly attracted to each other. The first two categories signified nonacceptance of premarital intercourse and the latter two, acceptance of premarital intercourse. Results showed the group of females who used contraceptives were more likely to be acceptant of premarital intercourse than either the group of females seeking abortion or the group of pregnant teenagers in the maternity home. Also, the birth control group found coitus more enjoyable than the pregnant females. The researchers stated that one implication of these findings is the contraceptors showed the greatest acceptance of their sexuality.

Gerrard (1974) investigated the relationship between sex guilt and contraceptive use among 45 abortion patients. She also included 47 females who were sexually active but not pregnant. She found a significant correlation between sex guilt and contraceptive use in the abortion group but not in the nonpregnant group.

Reiss et al. (1975) attempted to explain why females do or do not seek contraceptive assistance at a clinic. Reiss collected his sample from a Midwestern university during 1970 and 1971. Two hundred and ninety-four of the subjects were females attending an obstetrics and gynecology clinic. Another group of subjects consisted of female students selected from several classes. All the subjects completed a questionnaire. Results showed a nonvirginity rate of 50 percent and

an average age of 20.6 years. They found that females who sought help for contraception were more likely to believe they were attractive to males than females who did not seek help. This relationship was found for virginal and nonvirginal females. The females who sought help were also more likely to have a favorable view of themselves than females who did not seek contraceptive help. Reiss concluded that a "general acceptance of one's own sexuality" may be the key to contraceptive usage (p. 628). Others have also suggested that a lack of acceptance of one's own sexuality may inhibit one from using contraception (Flugel, 1947; Ford, 1973; Smith, 1973).

Religion and the Use of Contraception

There is some evidence that religious background may be influential in contraceptive practices. The evidence, however, partially depends upon whether one has studied religious preference, religiosity, or church attendance. Findings have also not been consistent for males and females.

Kantner and Zelnik (1973) described the relationship between religion and contraceptive practices among a national sample of 4.611 females between the ages of 15 and 19. They found that Catholic females, nonfundamentalist Protestant females, and females who professed no religion were similar in the percentage who reported having used some type of birth control at their latest coitus and ever having used birth control. Fundamentalist Protestants, however, were considerably less likely to have reported either using any form of birth control at their latest coitus or ever having used contraception.

Kantner and Zelnik (1973) found a positive association between church attendance and use of birth control at last coitus among black

females attending church five or more times a month used birth control at their latest coitus while of those who attended church less often, about four in ten used birth control at their last coitus. A negative relationship was found between church attendance and use of birth control for white females (Kantner and Zelnik, 1973). Approximately two-thirds of the white females who attend church five or more times a month failed to use birth control during their latest sexual liaison. Of those who attend church two or fewer times per month, less than one-half used birth control during their latest coitus.

Needle (1973) investigated the relationship between religion and whether contraception was used during the respondent's first coitus and his most recent coitus. Among males, Needle reported a significant relationship between religion and the use of a reliable form of contraception during their first sexual intercourse. He found Jewish males were the most reliable, followed by Protestant males, with Catholic males being the least reliable. Needle suggested, however, that the level of affection present in the premarital dyad may partially explain these findings. Catholic males, who were the most unreliable at first coitus also were the most likely to have had a sex partner towards whom they had little or no affection. When affection was present at first coitus, Catholic males were no more unreliable than Protestant males. The Catholic males were still more unreliable than the Jewish males, however.

Needle (1973) also reported that during the males' most recent intercourse Catholic males were the most unreliable, followed by Protestant males and then by Jewish males. The differences, however, were not statistically significant. In summary, Needle's findings

suggest a relationship may exist between a male's stated religion and his use fo birth control at his first and most recent sexual intercourse.

Needle (1973) found no statistically significant differences among female's stated religion and use of contraception at first coitus although Catholic females were the most unreliable, followed by Protestant females and then Jewish females. Needle measured religiosity by asking the females how important religion was to them. He found no significant relationship between religiosity and use of contraception at first coitus for females.

For the females' most recent sexual intercourse, Needle reported a significant relationship between their stated religion and use of contraception. Catholic females were the most unreliable and the Jewish females the least unreliable. Needle noted that the females' religion accounted for only seven percent of the variance in birth control use at last coitus. Finally, Needle found no significant relationship between use of contraception at last coitus and religiosity for females. Twenty-eight percent who stated religion was important to them used an unreliable method of contraception during their last coitus while 28.1 percent who stated religion was unimportant to them were unreliable at their last sexual intercourse.

Beard (1973) found a strong relationship among females' current religion and whether they were categorized as high risk conceptors or low risk conceptors. A strong relationship existed whether the religions were grouped by having conservative or liberal views on birth control or by the females being grouped by organized versus no organized religion.

Age and the Use of Contraception

A review of the literature showed that age appears to be influential in the contraceptive practices of unmarried males and females. Among females, as age increases those who did not use a method of contraception at younger ages tend to begin the occasional use of birth control (Kantner and Zelnik, 1973). Zelnik and Kantner (1977) later reported the older the teenager was at the time she began having coitus the more likely she began using contraception at the same time.

Needle (1973) found inconsistent results regarding age and the use of contraception. For females, at the time of their first coitus there was no significant relationship between age and whether a reliable method of contraception was used. When looking at the females' most recent sexual intercourse, Needle found a significant relationship between whether contraception was used and their current academic class standing (i.e., freshman, sophomore, junior, or senior).

Among males, Needle (1973) reported a significant relationship existed between age at first coitus and contraceptive use. That is, the older the males were at the time of their first sexual experience the more likely contraception was used. There was also a significant relationship between the males' age at first coitus and whether they used contraceptives regularly afterwards. Needle found that males who started having coitus after age 17 were more likely to use contraception regularly than males who began prior to age 17. He also found, however, that the number of sex partners males had was an intervening variable. Finally, Needle found a significant relationship between academic class standing and use of a reliable contraceptive at the last coitus. He

found freshman males were the most unreliable while seniors were the least unreliable. This was true, however, only in dyadic relationships where affection was present. Finally, Beard (1973) found that older females were more likely to be adequately preventing possible pregnancy than younger females.

In summary, the findings are inconsistent with respect to the female's age at first coitus and her use of contraception at her first coitus. Age does appear to be related to her current contraceptive practices.

Reference Groups and the Use of Contraception

There is limited evidence that there is a relationship between male use of contraception and reference groups. Needle (1973) reported that for those male students who said almost all or three-quarters of their very close friends had had sexual intercourse since coming to college, 29.3 percent used no method or used an unreliable method of contraception at last coitus. Of those males who reported almost none of their friends had had sexual intercourse, 65.5 percent were unreliable at last coitus.

CHAPTER III

Methodology

Subjects

The subjects were selected from dormitory students who were enrolled at Virginia Polytechnic Institute and State University during the spring quarter, 1978. A 1977-78 Virginia Polytechnic Institute and State University student directory was used to select the students. Upon selecting a one digit number from a table of random numbers, every seventh name was chosen. Only those students chosen who were living in a university dormitory were placed in the final sample. The selection process resulted in 526 female and 711 male students being in the final sample.

Two days prior to distributing the questionnaire, a form letter was sent to all the students who had been selected informing them that they have been chosen from the on-campus population to participate in a study being conducted by a doctoral candidate. The importance of their participation was stressed as was the anonymity of their responses. This letter as well as the questionnaire and a follow-up letter was sent through the on-campus mail system at Virginia Polytechnic Institute and State University. A two-page questionnaire was sent to all the subjects. A return self-addressed envelope was included with the questionnaire. The students were informed that the questionnaire could be returned through the campus mail. Seven days following the mailing of the questionnaire a follow-up letter was sent to all the subjects. The purpose of this letter was to thank those students who had returned a completed questionnaire and to encourage those who had not yet returned the questionnaire to do so.

Instrument

A two-page questionnaire was developed to measure the eleven inde-
pendent variables included in the causal models. The questionnaire was
a modified form of one originally used by Bauman (1970) and later by
Needle (1973). The dependent variable was a dichotomous variable:
whether or not a reliable form of contraception was used during the
respondent's most recent premarital coital experience. Those forms of
contraception defined as being reliable were the birth control pill,
the intrauterine device (IUD), the diaphragm, the condom, and sperm-
icidal foam. Following the classifications set by Bauman (1970) and
Needle (1973), douche, withdrawal, and the rhythm method were defined
as unreliable forms of contraception.

Sex Guilt

The level of sex guilt was measured by Mosher's Forced-Choice Sex
Guilt Inventory, Form M for males and Form F for females (Mosher, 1966;
1968). The two forms were constructed from male and female completions
obtained from the Mosher Incomplete Sentence Test (MIST). The MIST was
developed to measure three types of guilt: sex guilt, hostility guilt,
and morality-conscience.

Mosher's Forced-Choice Guilt Inventory, Form F was constructed
from an item pool of 276 items from completions to the MIST. The pool
was then reduced to 39 forced-choice items by chosing 78 guilty and
nonguilty responses to the same stem. The total score can range from
-61 to +64. The scale has a corrected split-half reliability coeffi-
cient of .95 (Mosher, 1968).

Mosher's Forced-Choice Sex Guilt Inventory, Form M was developed from 168 sex guilt items selected from the MIST. Guilty and nonguilty completions to the same stem which were found to discriminate on an item analysis were used. The inventory consists of 28 items whose total weighted scores can range from -45 to +37. A corrected split-half reliability coefficient was found to be .97 (Mosher, 1966).

Mosher's inventories are not meant to measure guilt as a feeling or as a state of an individual at any particular moment. Rather, guilt is conceptualized as a personality disposition (Mosher, 1968). Males and females with high levels of sex guilt are "expected to experience the feeling of guilt, or to confess, or to punish themselves, when transgressions occur" (Mosher, 1968:695). It was assumed that high levels of sex guilt can hinder a single sexually active college student from seeking, obtaining, and using contraception.

Religiosity

A six item inventory measuring conventional religiosity was used. The scale, developed by Schulz, Bohrnstedt, Borgatta, and Evan (1977), has an internal consistency reliability coefficient of .86.

Data Analysis

Only students who had premarital coitus at least once within the seven weeks prior to the mailing of the questionnaire were included in the analysis of the data. The two original causal models developed in Chapter I were separately analyzed. These causal models graphically represented new theorites on the use of contraception among single male and female college students. A path analysis procedure was undertaken to determine whether or not the relations in the data were consistent with the new theories (Kerlinger and Pedhazur, 1973).

A second procedure, termed theory trimming (Heise, 1969), was then performed. All path coefficients in the original models which were less than .05 (in standardized form) were deleted from the models. The regression equations were then rerun with new path coefficients being computed.

The effects of the independent, or predictor, variables upon the dependent variable were decomposed along the guidelines suggested by Wolfle (1977, 1978). The direct effect of each independent variable upon the dependent variable was equal to the standardized partial regression coefficient. For this study, the direct effect, Beta, was referred to as the "path coefficient" or "p". The total indirect effect consisted of the "extent to which intervening variables account(ed) for relationships among variables" (Wolfle, 1978:3). The total effect of each independent variable was the sum of the direct effect and the total indirect effects. Spurious effects were those effects which were "due to joint dependence on prior variables" (Wolfle, 1978:35). Joint associations, from which no causal interpretations were made, consisted of correlations between exogenous variables. The sum of the spurious effects and the joint associations was computed by subtracting the total effect value from the total association.

Assumptions

The following assumptions were made for this study:

1. The relationships among the variables in the theoretical models are linear, additive, and causal.

2. The causal models developed are recursive models. That is, there is only a one-way flow between the variables.

3. The students will honestly and accurately complete the questionnaire.

Limitations

Of the students selected from Virginia Polytechnic Institute and State University for this study, only those students living in dormitories and who were listed in the student directory were included in the selection process. Elimination of all the off-campus students may have biased the sample in that dormitory students may not have as many opportunities to engage in sexual activities as students who live in apartments or fraternity or sorority houses.

There may have been a difference in behaviors and attitudes relevant to this study between those students who returned the questionnaire and those students who did not. Although anonymity of the respondent's answers was stressed, some students may have felt that disclosing information about their sexual behaviors is too personal a matter to be shared. Some students may have been too embarrassed or threatened to respond to questions concerning their personal lives. Other students may have been offended by the nature of the study and decided not to participate in a study of this nature.

Another limitation of this study was that the students at Virginia Polytechnic Institute and State University are predominately white and middle class. Most of the students are also residents of Virginia. The findings of this study, then, were not generalized to either other college students or to single persons not in college. The findings also were not generalized to blacks or to lower class single persons.

Finally, not all the variables included in the models were measured on a interval scale. Although it was still deemed appropriate to use path analysis, special care was taken when interpreting the data.

Finally, it was anticipated that data from a minimum of 200 males and 200 females was necessary to run the path analytic procedures. In actuality, the procedures utilized data from 95 males and 126 females. Because of the large number of predictor variables included in each path model, it was felt that the sample size used in this study was a limitation.

CHAPTER IV

Results

During the spring quarter, 1978, 711 male and 526 female question-
naires were sent to students living in dormitories on the campus of
Virginia Polytechnic Institute and State University. Figures obtained
from the student housing office showed that 4,907 males and 3,283 fe-
males were residing in the dormitories during the beginning of spring
quarter. This meant that 14.5 percent of the males and 16.0 percent of
the females who were living in dormitories during spring quarter, 1978,
received a questionnaire. Nine questionnaires were returned due to a
student change in address. Two hundred and sixty-four males and 255
females returned the questionnaire. Three male questionnaires and one
unidentifiable questionnaire were unusable and discarded from further
analysis. There was a return rate of 36.8 percent for the males and
49.1 percent for the females. Of the total sample, 43 percent returned
the questionnaire.

There was evidence that, at least in terms of sexual behavior,
those students who returned the questionnaire were representative of
the larger on-campus student body. Of those males who returned the
questionnaire, 63.9 percent had premarital sexual intercourse. Sixty-
four percent of the females who returned the questionnaire had pre-
marital sexual intercourse. In a previous study, Sack (1974) found
among a non-random sample of Virginia Polytechnic Institute and State
University students, 74 percent of the males and 66 percent of the
females had premarital sexual intercourse.

The difference in the percentages of those who had sexual inter-
course between Sack's earlier study and the present one was partially
accounted for by the following observation. The earlier study consisted
of students living in on-campus housing as well as students living in
off-campus housing. The present study consisted solely of students
living on-campus. It is possible that students living off campus have
a greater opportunity to engage in sexual activity and subsequently do
so. Some students may move into off-campus housing in order to be able
to engage in more sexual activity than they would be likely to in a
dormitory. Parcel (1974) reported that 80 percent of those students
who were living off campus in an apartment had sexual intercourse where-
as 51.1 percent who lived in a campus dormitory had coitus.

The proportion of males engaging in sexual intercourse in the
present study was close to that found by Parcel (1974) while the pro-
portion of females engaging in sexual intercours was a little higher
than was found by him. Parcel found that among 929 students attending
the Pennsylvania State University, 62.1 percent of the males and 54.1
percent of the females had premarital sexual intercourse. Zelnik and
Kantner (1977) reported that 55.2 percent of the 19-year-old females in
their sample had premarital coitus.

Descriptive Analysis

Only students who engaged in premarital sexual intercourse were
included in any further analysis. The average age of the males was
19.3 years with 58.8 percent being 18-19 years old (Table 1). Only
23.6 percent of the males were juniors or seniors. The average age for
the females was also 19.3 years with 60.0 percent being in the 18 to

Table 1

Demographic Characteristics of Subjects

	Male (N=165)		Female (N=165)	
Variable	N	%	N	%
Age				
17 years or younger	1	0.6	1	0.6
18	43	26.1	44	26.7
19	54	32.7	55	33.3
20	40	24.2	36	21.8
21	19	11.5	22	13.3
22	8	4.8	5	3.0
23	--	--	2	1.2
Year in School				
Freshman	62	40.0	70	43.5
Sophomore	53	34.2	54	33.5
Junior	24	15.5	22	13.7
Senior	15	9.7	15	9.3
Graduate Student	1	0.6	--	--
Unidentified	10	--	4	--
Religion				
Protestant	91	55.2	109	66.1
Catholic	39	23.6	36	21.8
Jewish	8	4.8	4	2.4
Other	20	12.1	13	7.9
None	7	4.2	3	1.8
Religously Devout				
None at all	30	18.2	17	10.4
A little devout	60	36.4	66	40.2
Moderately devout	70	42.4	78	47.6
Very devout	5	3.0	3	1.8
Unidentified	--	--	1	--

19-year-old group. The percentage of females who were juniors or seniors was 22.4 percent.

Fifty-five percent of the males and 66.1 percent of the females were brought up in the Protestant religion. Twenty-four percent of the males and 21.8 percent of the females said they were brought up in the Catholic religion. Eight males (4.8%) and four females (2.4%) were brought up in the Jewish religion. Sixteen percent of the males and 9.7 percent of the females were reared in a different religion than the three religions previously mentioned or were reared with no religious affiliation.

Sexual Behavior

Table 2 shows the average age that males first engaged in sexual intercourse was 16.9 years. Furthermore, greater than half (63%) of the males who have had premarital coitus have done so prior to their eighteenth birthday. The most common age at which males first had sexual intercourse was 17 years.

Among females, the average age for first sexual intercourse was 17.2 years, with the most common age being 18 years. As was found for the males, over half (53.9%) of the females who have had coitus have done so prior to their eighteenth birthday.

Parcel's study (1974) showed similar results. Half of the Penn State students' first sexual intercourse was experienced at age 17 or 18 with the mean age being 17.4 years. Needle (1973) found a lower percentage of students who first had intercourse before age 18 than did Parcel. Needle reported that 51 percent of the males and 31.6 percent of the females first had intercourse at age 17 or before.

Table 2

Sexual Characteristics of Subjects

Variable	Male (N=165)			Female (N=165)	
	N	%		N	%
Age at first intercourse					
14 years or younger	13	7.9		9	5.5
15	12	7.3		17	10.3
16	32	19.4		26	15.8
17	47	28.5		37	22.4
18	36	21.8		49	29.7
19	20	12.1		14	8.5
20	4	2.4		10	6.1
21 years or older	1	0.6		3	1.8
Frequency of intercourse (per month)					
None	41	24.8		20	12.3
Less than once a month	39	23.6		42	25.8
About once a month	18	10.9		8	4.9
Twice a month	13	7.9		15	9.2
Three times	12	7.3		15	9.2
Four times	11	6.7		10	6.1
Five times	7	4.2		8	4.9
Six times	4	2.4		8	4.9
Seven or more	20	12.1		37	22.7
Unidentified	--	--		2	--
Frequency of intercourse (in past four weeks)					
None	70	43.3		49	29.7
Once	15	9.1		17	10.3
Twice	21	12.8		21	12.7
Three times	13	7.9		14	8.5
Four times	8	4.9		10	6.1
Five times	8	4.9		6	3.6
Six times	2	1.2		9	5.5
Seven times	4	2.4		11	6.7
Eight or more times	22	13.4		28	17.0
Unidentified	1	--		--	--

Zelnik and Kantner (1977) found the median age at first sexual inter-
course among the 18-year-old group to be 16.8 and among the 19-year-old
group, 17.1 years. In the present study, there was no significant
difference between males' and females' age at first intercourse.

Table 3 shows how the males and females classified their latest
sex partner. Almost half the males (46.6%) said they loved the person
with whom they most recently had sexual intercourse. Sixty percent of
the females, on the other hand, reported being in love with their most
recent sex partner. The females tended to rate their sex partner at a
higher level of emotional attachment than did the males. The difference
between the males' and females' ratings was statistically significant.

Maxwell, Sack, Frary, and Keller (1977), using Sack's 1974 data and
the same six-level emotional attachment scale as that used in the present
study, found that 50 percent of the males and 74 percent of the females
reported being in love with their most recent sex partner. This finding
was statistically significant at p = .001. While Maxwell et al.'s re-
sults and the present findings are similar regarding the percentage of
males who said they loved their most recent sex partner, the difference
in the percentage between the two studies for the females was very
noticeable. Two rationales were offered to explain the difference.
First, the earlier study was comprised mostly of junior and senior
females. Forty-one percent of the females were juniors and 26 percent
were seniors (Sack, 1974). The present study, as noted earlier, con-
sisted mostly of freshmen and sophomores. It was possible that these
under class females did not feel that the element of love was a necessary
prerequisite to engage in sexual intercourse, but later on, as juniors

Table 3

Classification of Sex Partner

at Last Sexual Intercourse

Classification of Sex Partner	Male (N=165)		Female (N=165)	
	N	%	N	%
Pick-up or casual date	35	21.3	14	8.6
Someone you dated often, but to whom you were not emotionally attached	15	9.1	8	4.9
Someone to whom you were emotionally attached but not in love	37	22.6	41	25.3
Someone with whom you were in love	42	25.6	46	28.4
Someone with whom you were in love and planning to marry	35	21.3	53	32.7
MALES ONLY: a prostitute	--	--	--	--
Unidentified	1	--	3	--

X^2 = 16.33
df = 4
p < .003

and seniors, would feel that love is necessary prior to engaging in coitus. The second explanation offered was that females, regardless of their academic class standing, are simply engaging in premarital coitus earlier in the relationship before love has developed, or that love is not necessary for females to engage in coitus.

Bell and Chaskes (1970) stated that the need for the female to be engaged prior to having coitus was less a condition in 1968 than was found in 1958. Bell and Chaskes suggested that the female's decision to engage in sexual intercourse was becoming less dependent upon the commitment of engagement but was "more a question of individual decision regardless of the level of the relationship" (p. 83). As Bell and Chaskes found engagement to be less of a prerequisite to sexaul intercourse, the element of love may currently be becoming, at least for some females, less of a prerequisite to engaging in coitus.

Contraceptive Practices

The methods of contraception used during the students' last sexual intercourse are shown in Table 4. For males and females, the most common method of birth control used was the oral contraceptive. The pill was used by 38.4 percent of the females and by 32.7 percent of the male's sex partner. The next most popular method used was the condom, which was used by 28.5 percent of the females' partner and 24.2 percent of the males.

Withdrawal, douche, and the rhythm method were defined as unreliable methods of birth control. It was found that 38.5 percent of the males used either an unreliable method or no method of contraception during their latest sexual intercourse. Twenty-eight percent of the females used either an unreliable method or no method of birth control.

Table 4

Method of Contraception Used

at Most Recent Intercourse

Method of Contraception	Male (N=165)		Female (N=165)	
	N	%	N	%
Condom	40	24.8	47	28.7
Diaphragm and/or spermicidal foam	5	3.1	8	4.9
Birth control pills	54	33.5	62	37.8
Intra-uterine device	--	--	1	0.6
Vasectomy	--	--	1	0.6
Withdrawal	21	13.0	20	12.2
Rhythm method	6	3.7	9	5.5
Douche	--	--	--	--
Nothing	35	21.7	16	9.8
Do not know	4	--	--	--
Unidentified	--	--	1	--

Previously, Needle (1973) reported 27.9 percent of the females and 32.8 percent of the males used nothing or an unreliable method of con- traception at their latest intercourse. Parcel (1974) found 219 of the 556 sexually active students (39.4%) used the pill during their last intercourse. The pill was the most frequent method of birth control used. The second most frequent method used, the condom, was used by 111 students (20.0%). In all, Parcel found 67.2 percent of the students used a reliable form of contraception during their last intercourse.

Zelnik and Kantner (1977) reported that the 18 to 19-year-olds, 42.9 percent of the females used the pill during their last sexual intercourse. The oral contraceptive was the most often used method of birth control. The second most often used method, the condom, was used by 9.3 percent of the females. In all, 30.4 percent used no method of contraception, while 5.4 percent used withdrawal and 2.3 percent used a douche.

Seventeen percent of the males and 12.3 percent of the females said they never use contraception whereas 37.7 percent of the males and 57.7 percent of the females said they always use some method of contraception (Table 5). Among the 19-year-old females, Zelnik and Kantner (1977) found 15.1 percent never used contraception while 30.5 percent reported always using some method of contraception. Sack (1974) found a greater percentage of students who reported always using contra- ception than either the present study or the study by Zelnik and Kantner. He found 50 percent of the males and 70 percent of the females reported that they always use some method of contraception. Further, only seven percent of the males and one percent of the females reported never using contraception (Sack, 1974).

Table 5

How Often Contraception is Used When

Engaging in Premarital Coitus

Use of Contraception	Males (N=165)		Females (N=165)	
	N	%	N	%
Never	28	17.3	20	12.3
Not much of the time	13	8.0	10	6.1
Some of the time	18	11.1	8	4.9
Most of the time	42	25.9	31	19.0
All the time	61	37.7	94	57.7
Unidentified	3	--	2	--

58

Factors Related to Contraceptive Use

During their latest intercourse, Protestant males were more likely
to have been reliable contraceptors, that is, either they or their part-
ners used a reliable form of contraception, than Catholic males. Table
6 shows 71.1 percent of the Protestant males used a reliable method of
birth control while 50.0 percent of the Catholic males used a reliable
contraceptive. This difference was statistically significant. The
number of Jewish males was too small to make any sound comparisons to
the Protestant or Catholic males. Table 6 shows, however, that of the
seven Jewish males (57.1%) used a reliable contraceptive during their
latest sexual intercourse.

Needle found similar results to those above reporting Catholic
males to be more likely to have been unreliable than Protestant males
in using contraception during their latest intercourse. Jewish males
were found to be the least unreliable group (Needle, 1973).

Among females, 75.2 percent who were Protestants were reliable
contraceptors at their last intercourse (Table 6). Seventy-two percent
of the Catholic females were reliable contraceptors. There was no
statistical difference between the two groups. All four of the Jewish
females used a reliable form of contraception during their latest sexual
intercourse.

For females, Needle (1973) reported a statistically significant
relationship between their religion and whether they were reliable
contraceptors. He found Catholic females to be the least reliable
group whereas the Jewish females were the most reliable group of
contraceptors.

Table 6

Religion and the Use of Reliable Contraception

	Protestant	Catholic	Jewish	Other	None
Male*					
Reliable Contraceptors	64 (71.1%)	19 (50.0%)	4 (57.1%)	9 (47.4%)	3 (42.7%)
Unreliable Contraceptors	26 (28.9%)	19 (50.0%)	3 (42.9%)	10 (52.6%)	4 (57.1%)
Female**					
Reliable Contraceptors	82 (75.2%)	26 (72.2%)	4 (100.0%)	6 (50.0%)	1 (33.3%)
Unreliable Contraceptors	27 (24.8%)	10 (22.2%)	– ––	6 (50.0%)	2 (66.7%)

* X^2 = 5.22, df = 1, p < .025

** X^2 = .128, df = 1, p > .50

Among the male students, there was no relationship between age at first intercourse and whether or not they used a reliable contraceptive at their latest intercourse (Table E, Appendix). Forty percent of the males who had intercourse before their eighteenth birthday were unreliable contraceptors while 36.6 percent of those males who first had intercourse at their latest intercourse at age 18 or later were unreliable contraceptors. Needle (1973) also found no relationship between age at first intercourse and being a reliable contraceptor at the males' latest intercourse. Needle reported of those males who first had intercourse at age 17 or before, 35 percent were unreliable contraceptors at their latest intercourse. Of those males who first had intercourse at age 18 or after, 33.3 percent were unreliable at their most recent intercourse.

There was no relationship between females' age at first intercourse and whether they were unreliable contraceptors during their latest intercourse (Table F, Appendix). Twenty-nine percent of the females who first had intercourse before their eighteenth birthday were unreliable contraceptors whereas 33.3 percent of the females who started engaging in sexual intercourse after their eighteenth birthday were reliable contraceptors.

Level of Emotional Attachment and Contraception

Over a third (37.1%) of the males who classified their latest sex partner as either a pick-up or casual date did not use a contraceptive device (Table 7). Of those males who classified their latest sex partner as someone with whom they were in love and planning to marry, only two out of 35 (5.7%) failed to use any type of contraception.

Table 7

Use of Contraception by Levels

of Emotional Attachment

Contraceptive Used	Male (N=160)		Female (N=163)	
	Level 1, 2, 3	Level 4, 5	Level 1, 2, 3	Level 4, 5
Condom	13.1%	11.9%	12.3%	16.0%
Diaphragm and/or spermicidal foam	--	2.5%	1.8%	3.1%
Birth control pills	15.0%	18.8%	8.6%	30.1%
IUD	--	--	1.0%	--
Vasectomy	--	--	--	1.0%
Withdrawal	6.9%	6.3%	5.5%	6.1%
Rhythm method	--	2.5%	2.5%	3.1%
Douche	--	--	--	--
Nothing	15.6%	6.2%	7.4%	2.5%

It was found that the percentage of unreliable contraceptors decreased fairly steadily through the five levels of emotional attachment. Of the 35 males who classified their latest sex partner as a pick-up or casual date, 19 of them (54.3%) were unreliable contraceptors, whereas eight of the 35 males (22.8%) who classified their sex partner as someone they were planning to marry were unreliable contraceptors. Males who classified their latest sex partner in the level implying the greatest degree of emotional attachment had the highest percentage of reliable contraceptors during their latest intercourse (77.1%).

The five levels of emotional attachment were collapsed into two groups: one group including levels 1, 2, and 3; the second group including levels 4 and 5 (Table 8). The second group included the element of love whereas the first group did not. Sixty-eight percent of the males who said they loved the person with whom they last had coitus used a reliable method of contraception, whereas 54.2 percent of the males who did not love their latest sex partner used a reliable method of contraception. In summary, there appeared to be a moderately positive association between the level of attachment the male expressed towards his most recent sex partner and the use of a reliable contraceptive. This was supportive of the previous findings of Kirkendall (1961), Fujita et al. (1973), and Sack (1974).

Seventy-eight percent of the females who used the pill during their latest intercourse had a sex partner with whom they were in love (levels 4 or 5). Of the 14 females who classified their latest sex partner as a pick-up or casual date, nine of them (64.3%) were unreliable contraceptors. Further, the percentage of unreliable contraceptors

Table 8

Use of Contraception and the Level

of Emotional Attachment Among Males

	Levels 1, 2, 3	Levels 4, 5
Unreliable Contraceptor*	38	24
Reliable Contraceptor*	45	53

*X^2 = 3.59, df = 1, p < .06

showed first a steady decline followed by a leveling off as the levels of emotional attachment increased. As a group, females who classified their latest sex partner as someone whom they planned to marry were the least likely to have been unreliable contraceptors (18.9%).

The five levels of emotional attachment were collapsed into two groups, the first group not including the element of love in the male-female relationship (levels 1, 2, and 3) and the second group including love being present in the premarital dyad (levels 4 and 5). Forty percent of the females who classified their latest sex partner as being in level 1, 2, or 3 were reliable contraceptors at their most recent intercourse. Nineteen percent of the females who classified their last sex partner as level 4 or 5 were unreliable contraceptors during their latest intercourse. This difference between the two groups was statistically significant (Table 9).

The percentage of males and females who reported always using contraception increased as the level of emotional attachment increased. Of those males whose latest sex partner was a casual date, 27.3 percent reported always using contraception, while those males who were in love with their latest sex partner (level 4), 43.2 percent always use contraception. Finally, 65.5 percent of the males whose latest sex partner was someone they intended to marry reported always using contraception when engaging in coitus.

For females, 18.2 percent (2 out of 11) whose latest sex partner was a pick-up or casual date reported always using contraception. Of those females whose latest sex partner was someone they loved and planned to marry, 71.7 percent reported always using contraception.

Table 9

Use of Reliable Contraception and the Level

of Emotional Attachment Among Females

	Levels 1, 2, 3	Levels 4, 5
Unreliable Contraceptor	25	19
Reliable Contraceptor	38	81

x^2 = 8.39
df = 1
p < .005

Path Analysis-Males

Males who met all of the following criteria were included in the path analysis procedure: had not omitted more than five items on the Mosher Forced-Choice Sex Guilt Inventory, had not omitted more than one item on the Schulz et al. conventional religiosity scale, had sexual intercourse at least once in the seven weeks previous to the mailing of the questionnaire, and knew the method of contraception used, if any, during their most recent sexual intercourse. Ninety-five males were included in the path analysis procedure.

The regression sub-program detailed in Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner and Bent, 1975) was employed. Nine regression equations were run which were previously determined by the path model. The path model with the path coefficients included is shown below. The multiple correlation coefficient, R, for the male model was .433 which was statistically significant ($p < .05$). The R^2, total variance explained by the model, was .197. The summary table for the dependent variable is shown in Table 10.

Expected Coitus to Occur When It Did

The causal model with path coefficients included shows that whether males had expected intercourse to occur when it did (Path F) had the greatest direct effect on the use of reliable contraception during their latest sexual intercourse. Males who had expected intercourse to occur when it did were more likely to have used reliable contraception than males who had not expected coitus to occur. The influence of this factor upon contraceptive practices has been previously documented (Bauman, 1970; Sack, 1974). The decomposition of this effect is shown in Table 10.

Diagram 2

Male Model with Path Coefficients
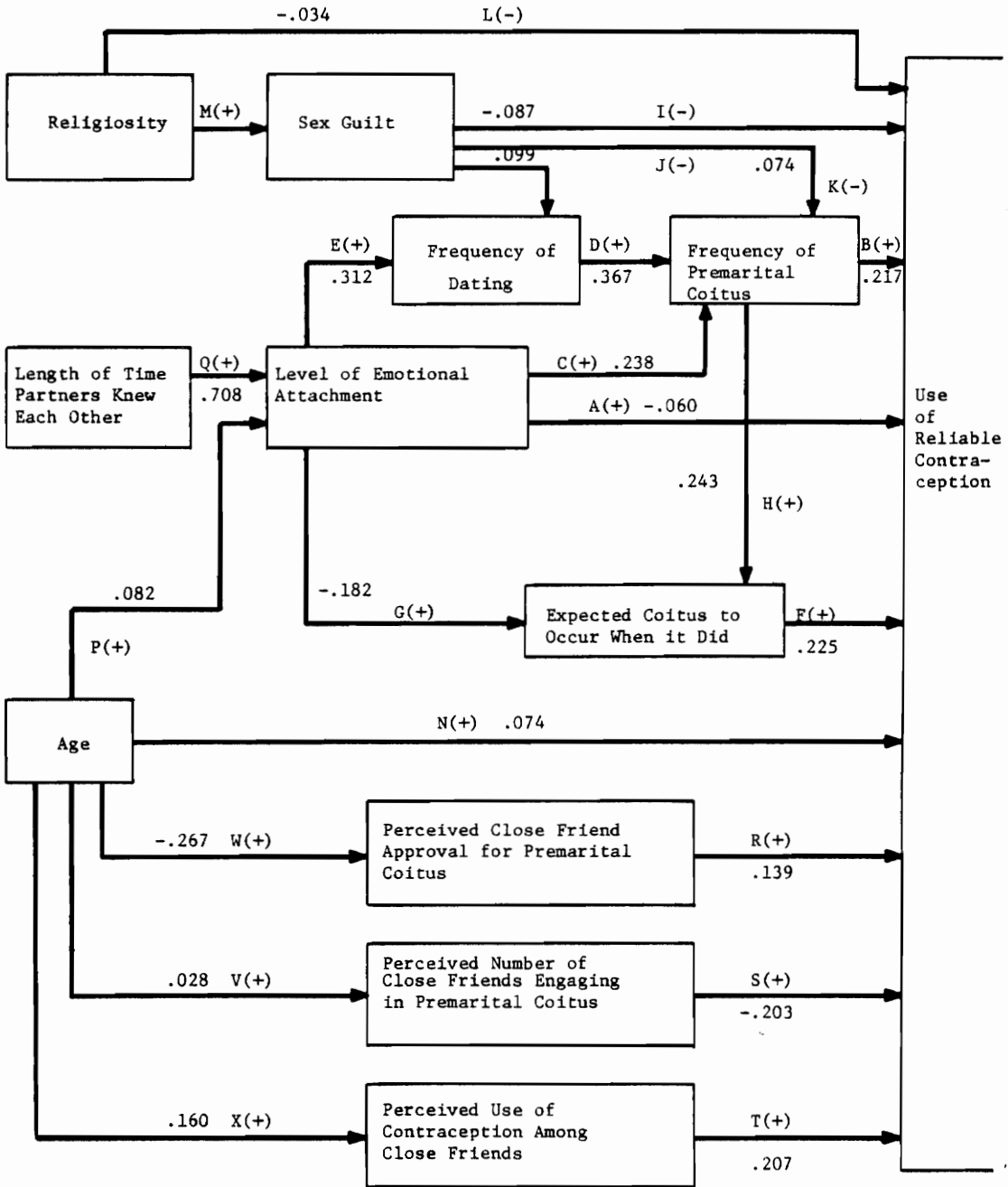
Table 10

Multiple Regression Summary Table

Males

Dependent Variable: Use of Reliable Contraception

Independent Variable	b	Beta	r
Expected coitus to occur	.219	.225	.275
Coital frequency	.035	.217	.226
Number of peers using birth control	.063	.207	.167
Number of peers engaging in premarital coitus	-.063	-.203	-.064
Peer approval for premarital coitus	.049	.139	.102
Sex guilt	-.002	-.087	-.143
Age	.030	.074	.042
Level of emotional attachment	-.021	-.060	-.034
Religiosity	-.003	-.034	-.167

Multiple R = .443

R^2 = .197

Table 11

Decomposition of Association for Expected Coitus

to Occur and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Expected coitus to occur and use of reliable contraception	Total Association	.275
	Total Effect	.225
	Direct Effect	.225
	Indirect Effects	--
	Spurious Effects and Joint Associations	.050

One explanation why the path coefficient was not higher may be because this independent variable is important only if the male's partner does not use a coitally independent method of contraception, such as the pill or IUD. If the method of contraception the male uses is coitally dependent, prior planning, such as purchasing condoms beforehand, is necessary to prevent a possible pregnancy.

Level of Emotional Attachment

The decomposition of the independent variable, level of emotional attachment, is shown in Table 12. Contrary to what was predicted, the influence of this variable, shown by Path A, had a negative direct effect upon the use of contraception ($p = -.060$). The greater the level of emotional attachment, the less likely the male reported that a reliable method of birth control was used during his last intercourse. That is, the coefficient for Path A appeared to indicate that the higher levels of emotional attachment have a slightly inhibiting effect upon the use of reliable contraception.

The total indirect effect of this independent variable was almost of equal strength, yet had a positive effect on the use of reliable contraception. The effect of the level of emotional attachment, when operating through the variables, frequency of dating, frequency of premarital coitus, and expecting coitus to occur, had a small, positive effect on the use of reliable birth control ($p = .055$). This was in the predicted direction. The total effect was $-.005$, indicating that the influence of emotional attachment upon the use of contraception was virtually nonexistent. In other words, the negative direct effect of emotional attachment upon the use of birth control was almost completely

Table 12

Decomposition of Association for Level of Emotional

Attachment and Use of Reliable Contraception

Males

Variable	Type of Effect	Decomposition
Level of Emotional Attachment and use of contraception	Total Association	−.034
	Total Effect	−.005
	Direct Effect	−.060
	Indirect Effects	.055
	1. through Paths G & F	−.041
	2. through Paths E, D, & B	.025
	3. through Paths E, D, H, & F	.006
	4. through Paths C & B	.052
	5. through Paths C, H & F	.013
	Spurious Effects and Joint Associations	−.029

cancelled out by an almost equal and positive indirect effect. The results for the males, then, failed to support earlier findings that the level of emotional attachment the male expresses toward the female has a positive influence on the use of reliable contraceptives.

The path model also shows that the level of emotional attachment had a negative influence upon whether the male expected coitus to occur when it did ($p = -.182$). The higher the level of emotional involvement, the less likely the male expected coitus to occur. This was contrary to the predicted direction.

One possible explanation was offered to understand why level of emotional attachment had a negative effect on whether the male expected coitus to occur. Males who are involved in a relationship with females they are in love with, are not likely to be primarily seeking sexual intercourse when with them. Intercourse among these couples may likely occur at times other than when on a "date." The end result would be the males often engaging in intercourse with a loved one while not having expected it to occur beforehand. Males who date casually, on the other hand, may date primarily for the purpose of sexual intercourse and would therefore be likely to have expected intercourse to occur when it did.

Frequency of Premarital Coitus

The coefficient for Path B showed that the frequency with which males engage in premarital coitus had a positive direct influence upon the use of reliable contraception ($p = .217$). The more frequently they engaged in coitus, the more likely the males were to have used a reliable method of birth control during their latest intercourse.

The decomposition of the effect of premarital coital frequency is shown in Table 13. The magnitude of the indirect effect of this variable, through the variable expected coitus to occur, was .055. This resulted in the total direct effect equalling .272. Premarital coital frequency was the most influential independent variable in the male causal model. In summary, the frequency that a male engages in coitus was the best predictor in determining if he used reliable birth control during his last coitus.

As hypothesized the frequency that a male engages in coitus had a positive influence on the variable, expecting coitus to occur ($p = .243$). This relationship was represented by Path H. That is, the more frequently a male had coitus, the more likely he expected his most recent intercourse to occur when it did.

Frequency of Dating

The frequency that males date, operating through the variables, frequency of coitus and expecting coitus to occur, was found to have a positive effect upon the use of reliable contraception during their last intercourse (.100). No direct effect of dating frequency upon contraceptive use was hypothesized in the original model (Table 14).

The coefficient for Path D Showed that dating frequency had a moderately positive effect on the frequency of premarital coitus ($p = .367$). In turn, as an independent variable, frequency of coitus showed a positive effect upon the use of reliable birth control (Path B). This association was previously discussed.

74

Table 13

Decomposition of Association for Frequency of Premarital

Coitus and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Frequency of coitus and use of reliable Contraception	Total Association	.226
	Total Effect	.272
	Direct Effect	.217
	Indirect Effect	.055
	1. through Paths H & F	.055
	Spurious Effects and Joint Associations	-.046

Table 14

Decomposition of Association for Frequency of Dating

and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Frequency of dating and use of reliable contraception	Total Association	.005
	Total Effect	.100
	Direct Effect	--
	Indirect Effects	.100
	1. through Paths D & B	.080
	2. through Paths D, H & F	.020
	Spurious Effects and Joint Associations	-.095

Sex Guilt

The coefficient for Path I shows that the males' scores on the Mosher Forced-Choice Sex Guilt Inventory was a very poor predictor of the use of reliable contraception. The direct effect of sex guilt, while in the predicted direction, was very mild (Table 15). As an indirect effect, sex guilt was hypothesized to operate through the variables, frequency of dating, frequency of coitus, and expecting coitus to occur. The decomposition of the effect of sex guilt upon the use of birth control showed an indirect effect of .030. It appeared, then, that the level of a male's sex guilt, as measured by Mosher's scale, had virtually no effect, direct or indirect, in influencing the use of reliable birth control.

Contrary to what was hypothesized, the level of sex guilt showed a positive, rather than a negative, effect upon the frequency of dating and the frequency of coitus. In both cases, sex guilt had a very minor effect upon coital and dating frequency.

Conventional Religiosity

The use of reliable birth control was hypothesized to be, in part, a function of the male's degree of conventional religiosity. It was hypothesized that strong conventional religious beliefs would act to inhibit the male from using reliable contraception. This relationship was represented by Path L.

Table 16 shows the direct and indirect effects religiosity had upon the use of reliable birth control. The coefficient for Path L showed that conventional religiosity appeared to be a very poor predictor of the dependent variable ($p = -.034$). Because the path

Table 15

Decomposition of Association for Sex Guilt

and Use of Reliable Contraception

Males

Variables	Type of Effects	Decomposition
Sex guilt and use of reliable contraception	Total Association	-.143
	Total Effect	-.057
	Direct Effect	-.087
	Indirect Effects	.030
	1. through Paths K & B	.016
	2. through Paths K, H & F	.004
	3. through Paths J, D & B	.008
	4. through Paths J, D, H & F	.002
	Spurious Effects and Joint Associations	-.086

Table 16

Decomposition of Association for Religiosity

and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Religiosity and use of reliable contraception	Total Association	-.167
	Total Effect	-.059
	Direct Effect	-.034
	Indirect Effects	-.025
	1. through Sex Guilt	-.025
	Joint Associations	-.108

coefficient was so small, the direct effect on religiosity upon contraceptive use was assumed to be nonexistent.

Conventional religiosity was also hypothesized to operate through the following four intervening variables: sex guilt, frequency of dating, frequency of coitus, and expecting coitus to occur. Table 16 shows religiosity to have had virtually no indirect effect (-.025) upon the use of reliable contraception. The total effect of the males' conventional religious beliefs was .059. In summary, the males' religious beliefs appeared to have little influence, direct and indirect, upon the use of reliable contraception. It did appear that males with more conventional religious beliefs were slightly less likely to have used reliable birth control during their latest sexual intercourse.

The coefficient for Path M indicated that religiosity had moderately strong influence upon the level of sex guilt (p = .442). One's religious beliefs, then, appeared to be a fairly good predictor of sex guilt among males. Males with conventional religious beliefs tended to have higher levels of sex guilt than males with less conventional religious beliefs. This finding was consistent with that previously hypothesized.

Length of Time Partners Knew Each Other

The length of time the male and female knew each other was hypothesized to have a positive indirect effect upon the use of reliable contraception. The longer a couple knew each other, the greater the likelihood that a reliable contraceptive would be used during intercourse. It was hypothesized that this independent variable would not have a significant direct effect upon the use of contraception but,

rather, would operate through four intervening variables: level of emotional attachment, frequency of dating, frequency of coitus, and expecting coitus to occur.

Table 17 shows the indirect effect to be virtually nonexistent. The correlation between length of time partners knew each other and use of contraception was also very small (r = .016). It appeared, then, that the length of time partners know each other is a poor predictor in determining whether one used reliable birth control. The major reason for this finding was due, in part, to the low degree of influence the level of emotional attachment had upon the use of reliable contraception.

Finally, the coefficient for Path Q (p = .708) shows that level of emotional attachment was a function, in part, of the length of time the sex partners knew each other. The length of time, then, had a strong, positive direct effect upon the level of emotional attachment. This finding was consistent with what was hypothesized.

Age

It was hypothesized that the present age of males would have a direct, positive effect upon the use of reliable contraception (Path N). It was also hypothesized that age would have an indirect effect upon the use of reliable contraception, operating through seven intervening variables.

Table 18 shows the decomposition of the effects of age into its direct and indirect effects. The coefficient for Path N showed that the male's age appeared to have little direct influence upon the use of birth control (p = .074). Operating through the intervening variables,

Table 17

Decomposition of Association for Length of Time Partners

Knew Each Other and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Length of time and use of reliable contraception	Total Association	.016
	Total Effect	-.003
	Direct Effect	--
	Indirect Effect	-.003
	1. through Level of Emotional Attachment	-.003
	Joint Associations	.019

Table 18

Decomposition of Association for Age

Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Age and use of contraception	Total Association	.042
	Total Effect	.064
	Direct Effect	.074
	Indirect Effects	−.010
	1. through Level of Emotional Attachment	−.0004
	2. through Paths W & R	−.037
	3. through Paths V & S	−.006
	4. through Paths X & T	.033
	Joint Associations	−.022

age had virtually no influence on the use of birth control (-.010). It appeared, then, as both a direct effect and an indirect effect, age was a poor predictor of the use of reliable birth control for males.

Close Friend Approval

As hypothesized the Path R coefficient shows that the degree of approval a male perceives for engaging in premarital coitus with a loved one had a positive influence upon the use of reliable birth control (p = .139) (Table 19). It appeared that when a male perceives approval for his sexual behavior, he or his partner is more likely to take precaution against the possibility of an unwanted pregnancy.

The inclusion of Path W in the model indicated that perceived close friend approval was thought to be a function of one's age. It was expected that older males would be more approving of premarital coitus than younger males. It was found, however, that age seemed to have a negative effect; the older a male is, the less approval he perceives from close friends for engaging in premarital coitus. The coefficient for Path W was one of the stronger coefficients in the causal model.

Number of Close Friends Engaging in Premarital Coitus

It was hypothesized that the greater the number of friends a male had who engaged in premarital coitus, the greater the likelihood that he would use reliable birth control (Path S). Table 20 shows, however, that this variable appeared to have a negative, not positive, direct effect on the use of reliable birth control (p = -.203). That is, an increase in the number of friends who engage in premarital sex increased the likelihood that the male was unreliable at his latest intercourse.

Table 19

Decomposition of Association for Perceived Close Friend

Approval and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Close friend approval and use of reliable contraception	Total Association	.102
	Total Effect	.139
	Direct Effect	.139
	Indirect Effects	--
	Spurious Effects and Joint Associations	-.037

Table 20

Decomposition of Association for Number of Close Friends Engaging

in Premarital Coitus and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Number of close friends engaging in coitus and use of reliable contraception	Total Association	-.064
	Total Effect	-.203
	Direct Effect	-.203
	Indirect Effects	--
	Spurious Effects and Joint Associations	.139

This finding was not consistent with earlier findings. Needle (1973) found that males who perceived the majority of their friends having premarital coitus were more likely to have been reliable contraceptors at their most recent intercourse than males who thought most of their friends were not sexually active.

Use of Contraception Among Close Friends

It was hypothesized that the number of close friends a male thought were reliable birth control users would have a positive direct effect on the use of reliable contraception of that male. The coefficient for Path T shows that, in fact, there was a positive effect (p = .207) (Table 21). The greater the number of friends a male believes use contraception the greater the likelihood he also used a reliable contraceptive at his latest intercourse. It is possible that when a male's peers use contraception, he will also use it. This may be due to peer pressure or due to the fact that the male perceives the support to become involved and responsible for preventing the occurrence of an unwanted pregnancy.

Summary

Path coefficients for the male causal model were computed and subsequently discussed. The model accounted for 19.7 percent of the variance. Those variables which appeared to have the greatest total effect upon the use of reliable birth control during latest intercourse were frequency of coitus and whether the male expected coitus to occur when it did. Not surprisingly, these two variables had the highest Pearson-product moment correlation with the dependent variable (.226 and .275, respectively) of any of the independent variables.

Table 21

Decomposition of Association for Use of Contraception Among

Close Friends and Use of Reliable Contraception

Males

Variables	Type of Effect	Decomposition
Number of friends using contraception and use of reliable contraception	Total Association	.167
	Total Effect	.207
	Direct Effect	.207
	Indirect Effects	--
	Spurious Effects and Joint Associations	-.040

Variables which tended to be demographic in nature (i.e., age) or psychological in orientation (degree of religiosity and sex guilt) appeared to have little influence upon the use of reliable contraception. It also appeared that the males' reference group may be of some importance, in influencing contraceptive usage. Males who perceived support from close friends for engaging in premarital coitus and who perceived their close friends as using contraception also tended to use contraception, at least during their most recent sexual intercourse.

Surprisingly, the level of emotional attachment had very little total effect upon the use of contraception. This was contradictory to previous findings. A reason for this may be failure on the part of past researchers to control for the males' coital frequency. While the model showed that the level of emotional attachment had a negative direct effect, an almost equally positive indirect effect was found.

Path Analysis-Females

Females who met all of the following criteria were included in the path analysis procedure: had not omitted more than five items on the Mosher Forced-Choice Sex Guilt Inventory, had not omitted more than one item on the Schulz et al. conventional religiosity scale, had sexual intercourse at least once in the seven weeks previous to the mailing of the questionnaire, and knew the method of contraception used, if any, during their latest sexual intercourse. One hundred and twenty-six females were included in the path analysis procedure.

Nine regression equations were run which were previously determined by the causal model for females. The path model with the path coefficients included is shown below. The multiple correlation coefficient,

Diagram 3

Female Model with Path Coefficients
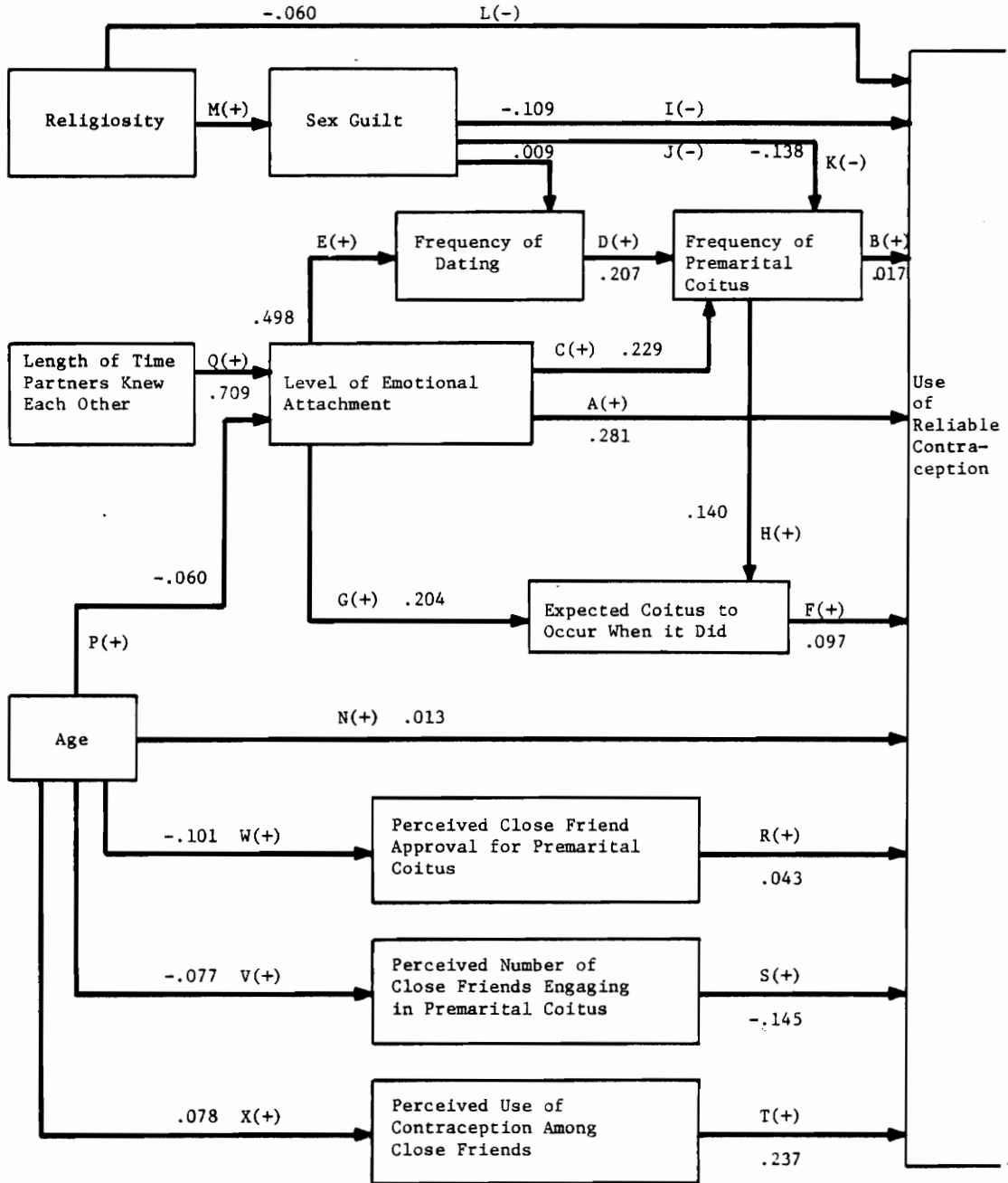
R, for the female model was .386 which was statistically significant $(p < .05)$. The R^2, total variance explained by the model, was .149.

Expecting Coitus to Occur When It Did

It was hypothesized that if the female expected coitus to occur when it did, she would be more likely to have used a reliable birth control than if she did not expect it to happen. Path coefficient F shows that this independent variable appeared not to be very influential in the use of contraception $(p = .097)$. Expecting intercourse to occur, then, appeared to have a positive influence on the use of reliable contraception. In short, expecting coitus to occur when it did slightly increased the likelihood that the female used a reliable method of birth control (Table 23).

With the above finding in mind, it is likely that for a female using the pill as her usual method of contraception, it makes little or no difference in her being adequately protected against pregnancy if she expects intercourse to occur. Since her method of birth control is coitally independent, she does not have to anticipate whether a specific act of intercourse will occur.

The influence of the independent variable, expecting coitus to occur, upon the use of reliable birth control during the latest intercourse, while having a weak effect for females, was the most influential independent variable for males. The difference between males $(p = .225)$ and females $(p = .097)$ was quite apparent.

Level of Emotional Attachment

It was hypothesized that the level of emotional attachment a female reported having towards her sex partner would have both a positive direct

Table 22

Multiple Regression Summary Table

Females

Dependent Variable: Use of Reliable Contraception			
Independent Variable	b	Beta	r
Level of Emotional Attachment	.104	.281	.258
Number of Peers Using Birth Control	.080	.237	.135
Number of Peers Engaging in Premarital Coitus	-.045	.145	-.057
Sex Guilt	-.004	-.109	-.138
Expected Coitus to Occur	.104	.097	.182
Religiosity	-.008	-.060	-.064
Peer Approval for Premarital Coitus	.014	.043	.022
Coital Frequency	-.003	-.017	.096
Age	.005	.013	.066

Multiple R = .387

R^2 = .149

Table 23

Decomposition of Association for Expected Coitus to Occur

and Use of Reliable Contraception

Females

Variable	Type of Effect	Decomposition
Expected coitus to occur and use of reliable contraception	Total Association	.182
	Total Effect	.097
	Direct Effect	.097
	Indirect Effects	--
	Spurious Effects and Joint Associations	.085

effect as well as a positive indirect effect upon the use of reliable birth control during her latest intercourse. Table 24 shows that the coefficient for Path A, the direct effect, was .281 and the strength of the total indirect effect was .018. This variable had the greatest influence upon the use of reliable birth control of those independent variables included in the causal model. It appeared that the greater the level of emotional attachment, the more likely the female was a reliable contraceptor during her latest coitus.

Why the level of emotional attachment was moderately influential in the use of birth control was not clear. Diagram shows that expecting coitus to occur when it did was hypothesized to be a function of level of emotional attachment. Results showed that level of emotional attachment did have a moderate influence on the former (p = .204). However, expecting coitus to occur was found to be of almost no importance in whether the female used a reliable contraceptive (Path F). Similarly, although the level of emotional attachment had a fairly moderate influence upon the frequency of premarital coitus (p = .229), coital frequency had very little influence upon the use of contraception (Path B).

Frequency of Premarital Coitus

It was hypothesized that the more frequently a female engaged in sexual intercourse, the more likely she was to have used a reliable method of contraception during her latest intercourse. The coefficient for Path B, -.017, shows that the direct effect of coital frequency was of extremely low magnitude, and was assumed to be zero. That is, coital frequency did not appear to have any direct effect upon the use of reliable contraception.

Table 24

Decomposition of Association for Level of Emotional

Attachment and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Level of emotional attachment and use of contraception	Total Association	.258
	Total Effect	.299
	Direct Effect	.281
	Indirect Effects	.018
	1. through Paths G & F	.020
	2. through Paths E, D & B	-.002
	3. through Paths E, D, H & F	.001
	4. through Paths C & B	-.004
	5. through Paths C, H & F	.003
	Spurious Effects and Joint Associations	-.041

Frequency of coitus also was hypothesized to operate through the variable, expecting coitus to occur when it did. Results show this indirect effect also to be very close to zero (Table 25). In fact, the total effect of coital frequency was virtually nonexistent (-.003). It appeared, then, that the frequency with which a female engaged in premarital sexual intercourse had little effect, either directly or indirectly, upon the use of reliable contraception.

The frequency of premarital coitus also was hypothesized to act as an intervening variable between level of emotional attachment and the use of reliable contraception. Results showed that the level of emotional attachment had a moderately positive effect upon coital frequency (p = .229). This relationship is shown by Path C. It appeared that females who classified their sex partner at a high level of attachment had a greater degree of coital activity than females who classified their partner at a lower level.

It was further hypothesized that expecting coitus to occur when it did would be, in part, a function of coital frequency (Path H): the greater the frequency of coitus, the less the probability that coitus was unexpected to occur when it did. Results showed that there was a positive effect of coital frequency upon expecting coitus to occur (p = .140). The two variable, level of emotional attachment and coital frequency accounted for eight percent of the total variance of whether the female expected coitus to occur.

As a dependent variable, coital frequency was hypothesized to be a function of both frequency of dating (Path D) and level of emotional attachment (Path C). Table 26 shows the relative influences of these

Table 25

Decomposition of Association for Frequency of Premarital

Coitus and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Frequency of coitus and use of reliable contraception	Total Association	.096
	Total Effect	−.003
	Direct Effect	−.017
	Indirect Effects	.014
	1. through Paths H & F	.014
	Spurious Effects and Joint Associations	.099

Table 26

Coital Frequency and Dating Frequency, Level

of Emotional Attachment, and Sex Guilt

Females (N=124)

Variable	b	Beta
Dependent variable- Coital Frequency		
Dating Frequency	.308	.271
Emotional Attachment	.563	.230
Sex Guilt	-.0300	-.139
Multiple R	.430	
R^2	.185	

three variables upon coital frequency. Frequency of dating appeared to
have the greatest influence upon coital frequency, followed by level of
emotional attachment and degree of sex guilt. The proportion of total
variance accounted for was 18.5 percent. As predicted, it appeared that
females with higher levels of sex guilt engaged less often in premarital
coitus than females who had lower levels of sex guilt.

Frequency of Dating

It was hypothesized that frequency of dating, operating through
frequency of coitus (Path D) and expecting coitus to occur when it did
(Path H), would have an influence on the use of reliable contraception.
However, because the influence of dating frequency was relatively minor,
the influence on coital frequency (p = .207) and the influence of the
two intervening variables upon the use of reliable contraception was
even less, it was obvious that dating frequency would have virtually no
effect upon the use of contraception. Table 27 shows that to have been
the case. Among females, the frequency of dating had virtually no in-
fluence upon the use of reliable birth control.

Sex Guilt

It was hypothesized that females' degree of sex guilt would have
an inhibiting effect upon their use of birth control. It was hypothe-
sized that the higher the level of sex guilt, the less likely those
females would seek, obtain, and use reliable contraceptive devices.
This relationship was represented by Path I.

The coefficient for Path I shows that sex guilt had a negative
influence on the use of reliable birth control. The more guilty the
females, the less likely they or their partner used a reliable method

Table 27

Decomposition and Association for Frequency of Dating

and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Frequency of dating and use of reliable contraception	Total Association	.022
	Total Effect	-.001
	Direct Effect	--
	Indirect Effects	-.001
	1. through Paths D & B	-.004
	2. through Paths D, H & F	.003
	Spurious Effects and Joint Associations	.021

of birth control during their latest sexual intercourse. While the path coefficient was negative, and therefore had the sign which was predicted, the coefficient was very low in strength. Its total effect, -.105, was seen as playing a minor role in the use of reliable contraception (Table 28).

Religiosity

It was hypothesized that females who scored higher on the conventional religiosity scale (i.e., were more religious) would be less likely to use reliable birth control. It was thought that one's religious beliefs would not only have a direct effect upon the use of contraception (Path L) but would also operate through intervening variables.

Table 29 shows the decomposition of the independent variable, religiosity. There appeared to be a very weak, negative direct effect of religiosity upon the use of reliable birth control. There was also a negative, indirect effect of almost equal strength. The total effect, although mild, was in the predicted direction. It appeared, then, that females who had conventional religious beliefs were less likely to have used a reliable contraceptive during their last intercourse than females with less conventional religious beliefs.

Sex guilt was hypothesized to have been a function of conventional religiosity (Path M). The path model shows that religiosity did appear to have a fairly strong influence on sex guilt (p = .497). Religiosity accounted for 24.8 percent of the total variance for females' sex guilt scores. Females with conventional religious beliefs were more likely to have higher levels of sex guilt than females with less conventional religious beliefs.

Table 28

Decomposition of Association for Sex Guilt

and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Sex guilt and use of reliable contraception	Total Association	-.138
	Total Effect	-.105
	Direct Effect	-.109
	Indirect Effects	.004
	1. through Paths K & B	.002
	2. through Paths K, H & F	.002
	3. through Paths J, D & B	-.00003
	4. through Paths J, D, H & F	-.00002
	Spurious Effects and Joint Associations	-.033

Table 29

Decomposition of Association for Religiosity

and Use of Reliable Contraception

Females

Variables	Types of Effect	Decomposition
Religiosity and use of reliable contraception	Total Association	-.064
	Total Effect	-.112
	Direct Effect	-.060
	Indirect Effects	-.052
	1. through Sex Guilt	-.052
	Joint Associations	.048

Sex guilt was hypothesized to have been a function of conventional religiosity (Path M). The path model shows that religiosity did appear to have a fairly strong influence on sex guilt (p = .497). Religiosity accounted for 24.8 percent of the total variance for the females' sex guilt scores. Females with conventional religious beliefs were more likely to have higher levels of sex guilt than females with less conventional religious beliefs.

Age

It was hypothesized that the females' present age would have a positive effect, direct and indirect, upon the use of reliable contraception. Older females were hypothesized as more likely being reliable contraceptors than younger females.

The total association between age and use of reliable birth control was .066. The direct effect of age on use of birth control represented by Path N was .013 and the indirect was .007 (Table 30). The total effect, .020, was seen as being virtually nonexistent. It was concluded that the females' present age was a very poor predictor of contraceptive usage and contributed very little to the understanding of the contraceptive practices of single female college students.

Length of Time Partners Knew Each Other

It was hypothesized that the length of time the sex partners knew each other would have a positive, indirect effect upon the use of birth control. The longer the couple knew each other, the greater would be the chances that they would have used a reliable type of birth control during their last intercourse.

Table 30

Decomposition of Association for Age and

Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Age and use of contraception	Total Association	.066
	Total Effect	.020
	Direct Effects	.013
	Indirect Effects	.007
	1. through Level of Emotional Attachment	−.018
	2. through Paths W & R	−.004
	3. through Paths V & S	.011
	4. through Paths X & T	.018
	Joint Associations	.046

Table 31 shows that the length of time the sex partners knew each other had a moderate effect upon the use of reliable birth control. The longer a couple knew each other, the greater the likelihood they used reliable birth control. This exogenous variable, although operating upon the dependent variable, use of reliable contraception, only indirectly was the second most influential independent variable in the causal model. The reason for this was the strong correlation between length of time the partners knew each other and the level of emotional attachment (r = .700). As hypothesized, level of emotional attachment was found to be a function of length of time (p = .709).

Close Friend Approval

It was hypothesized that the greater the perceived close friend approval a female saw for engaging in premarital coitus, the more likely she would use some method of reliable contraception (Path R). Conversely, a lack of approval was hypothesized as being an inhibiting factor in the use of reliable contraception.

Table 32 shows that perceived close friend approval had virtually no influence upon the use of reliable contraception, and was therefore a poor predictor. Furthermore, contrary to what was predicted, it appeared that the older the female, the less approval she perceived from her close friends for engaging in premarital coitus. The path coefficient, however, was very weak (p = -.101).

Number of Close Friends Engaging in Premarital Coitus

It was hypothesized that the greater the number of close friends a female thought engaged in premarital coitus, the greater the likelihood she would have been a reliable contraceptor during her last intercourse

Table 31

Decomposition of Association for Length of Time Partners

Knew Each Other and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Length of time and use of reliable contraception	Total Association	.266
	Total Effect	.212
	Direct Effect	--
	Indirect Effects	.212
	1. through Level of Emotional Attachment	.212
	Joint Associations	.054

Table 32

Decomposition of Association for Perceived Close Friend

Approval and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Close friend approval and use of reliable contraception	Total Association	.022
	Total Effect	.043
	Direct Effect	.043
	Indirect Effects	--
	Spurious Effects and Joint Associations	-.021

(Path S). It was expected that the greater the number of non-virginal friends, the more likely the female would feel she would be supported for engaging in coitus. This, in turn, was expected to motivate the female towards using some method of reliable birth control.

Table 33 shows a negative path coefficient existing between use of birth control and number of non-virginal close friends. It appeared that the greater the number of friends a female perceived as having pre-marital intercourse, the less likely she was to have used reliable conception during her latest coitus. This was contradictory to what was hypothesized.

Use of Contraception Among Close Friends

It was hypothesized that the greater the number of close friends a female thought were reliable contraceptors, the greater the likelihood she, herself, would be a reliable contraceptor (Path T). Table 34 shows some support for this relationship; the number of friends the female perceived as always using birth control had a moderate and positive direct effect on her use of reliable contraception ($p = .237$). This independent variable was the third most influential variable upon the use of contraception specified in the causal model.

Summary

Path coefficients for the female causal model were computed and discussed in terms of the direct and indirect effects the independent and intervening variable had upon the use of reliable contraception during the females' last sexual intercourse. For females, the variables which appeared to be the best predictors for the use of reliable contraception were level of emotional attachment, use of birth control among

Table 33

Decomposition of Association for Number of Close Friends Engaging

in Premarital Coitus and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Number of close friends engaging in coitus and use of reliable contraception	Total Association	−.057
	Total Effect	−.145
	Direct Effect	−.145
	Indirect Effects	--
	Spurious Effects and Joint Associations	.088

Table 34

Decomposition of Association for Use of Contraception Among

Close Friends and Use of Reliable Contraception

Females

Variables	Type of Effect	Decomposition
Number of friends using contraception and use of reliable contraception	Total Association	.135
	Total Effect	.237
	Direct Effect	.237
	Indirect Effects	--
	Spurious Effects and Joint Associations	-.102

close friends, and length of time the partners knew each other. Even these variables appeared to be modest predictors for the use of birth control. The level of emotional attachment, which appeared to have the strongest direct effect on the use of reliable contraception, had a path coefficient of only .281.

It appeared that the relationship the female had with her sex partner was central to her contraceptive practices. The reason for this, however, was not related to her sexual activity within that relationship. Coital frequency, for example, while being a function of emotional attachment had virtually no influence upon the use of reliable contraception. The variable, expecting coitus to occur when it did, while also being a function of emotional attachment appeared to have an almost nonexistent influence upon the use of birth control.

In the past a female felt she had to have commitment within a relationship, such as engagement plans or the admission of love from her partner, prior to engaging in intercourse (Bell and Chaskes, 1970). This commitment may now be seen as necessary, not so much to have premarital intercourse, but rather for the female to use contraception in premarital relations.

Further, previous research has shown that a relationship exists between having premarital coitus and affection toward one's partner for females, with a similar but weaker association existing among males (Reiss, 1970). If the explanation developed here is accurate, that is, there exists a relationship between use of reliable contraception and emotional attachment, it is likely to expect that this relationship would be stronger for females than for males.

Comparisons of the Male and Female Models

A comparison of the male path coefficients to the female path coefficients showed the greatest difference in coefficients between the two models was the relative importance of the variable, level of emotional attachment (Table 35). In the male model, emotional attachment had an almost nonexistent total effect upon the use of reliable contraception. The total indirect effects of emotional attachment almost equalled the direct effect of emotional attachment upon the use of contraception. It appeared that the level of emotional attachment had a positive influence upon the use of reliable contraception only as it operated through dating and coital frequency. It was felt that a love relationship was not a strong predictor in the use of birth control for males, but rather emotional attachment positively influenced dating and coital frequency, and these variables, in turn, positively influenced the use of reliable contraception. It appeared that the key element in understanding the male's use of birth control, then, was not emotional factors or psychological factors, such as religiosity or sex guilt, but dating and sexual frequencies. Those males who tended to be more active in dating and sexual activities were more likely to have been reliable contraceptors than males with less dating and sexual activities. In turn, males who tended to date the most and be the most sexually active tended to be males who were involved in a male-female relationship where there was the aspect of love.

In the female model the level of emotional attachment had the strongest direct effect upon the use of reliable contraception. It appeared that for the females, unlike for the males, a love relationship

Table 35

Direct and Total Effects of Independent Variables

Upon the Use of Reliable Contraception

Variable	Male		Female	
	Direct Effect	Total Effect	Direct Effect	Total Effect
Emotional Attachment	-.060	-.005	.281	.299
Peer use of Contraception	.207	.207	.237	.237
Expected Coitus to Occur	.225	.225	.097	.097
Number of Peers being Nonvirgins	-.203	-.203	-.145	-.145
Coital Frequency	.217	.272	-.017	-.003
Peer Approval	.139	.139	.043	.043
Sex Guilt	-.087	-.057	-.109	-.105
Age	.074	.063	.013	.020
Religiosity	-.034	-.059	-.060	-.112
Dating Frequency	--	.100	--	.004
Length of Time Partners Knew One Another	--	.003	--	.212

was a relatively influential variable in the use of birth control.
Also, as was found among the males, females who tended to be involved
in higher frequencies of dating and sexual activity than females in-
volved in lower levels of dating and sexual behavior were more likely
to be involved in a relationship having a high level of emotional
attachment. However, whereas dating and coital frequency was somewhat
influential among the males' use of reliable birth control, dating and
coital frequency were not too influential in the females' use of reli-
able contraception. That is, in the female model use of reliable con-
traception was infleunced by the level of emotional attachment and only
very mildly influenced by dating and coital frequency. In the male
model, coital frequency had a moderate influence upon the use of birth
control while the level of emotional attachment did not.

It appeared likely that the use of the pill by unmarried females
was one of the key elements to understanding the different findings
between males and females. The use of all methods of contraception
(including no method of contraception) was compared with the use of
the pill by levels of emotional attachment. The lower three levels
were compared with the upper two levels. In levels 1, 2, and 3 com-
bined, 28.9 percent of the male's partner used the pill. Thirty-nine
percent of the male's partner in levels 4 and 5 used the pill ($X^2 = 1.80$,
df = 1, p < .20. For females in levels 1, 2, and 3, 22.2 percent used
the pill while 49.5 percent of the females in levels 4 and 5 used the
oral contraceptive ($X^2 = 11.59$, df = 1, p < .001. It appeared, then,
that the association between emotional attachment and the use of the
pill was stronger among females than males.

Once the female begins taking the pill daily, it is likely that the importance of coital frequency loses much, although not all, of its influence upon the use of reliable birth control. The reason for this is the pill is a coitally independent method of birth control. The female who takes the pill as her usual method of contraception will still be protected from possible pregnancy should intercourse occur unexpectedly or infrequently. The female who uses the pill does not need to be concerned with making sure she has her diaphragm or foam with her. Nor does she need to be concerned with whether the male remembered to secure a condom. Further, with the use of the pill, the female is not likely to be "swept away" by passion and forget to, or not bother to, use foam, a diaphragm, or condom. In summary, it appeared for females that the level of emotional attachment was influential in the use of the pill, and that although emotional attachment influenced coital frequency, the latter had only a minimal effect on the use of reliable contraception.

The male situation appeared to be different from the female's. The association between emotional attachment and use of the pill by the male's partner was not as strong as was found for the female sample. Males relied more upon the use of other methods of birth control than did the females. Further, those other methods were coitally dependent methods of contraception, such as the condom, withdrawal, and the diaphragm. These methods logically are more closely associated with coital frequency than the pill. For the male using a coitally dependent contraceptive, each act of sexual intercourse requires the deliberate and conscious use of one of these methods. Males who engaged more frequently

in coitus were more likely, it appeared, to have been prepared to have

used a coitally dependent method of birth control than males who engaged

less often in coitus.

Concerning the other independent variables in the causal models,

religiosity and sex guilt had a slightly greater influence upon the use

of contraception in the female model than in the male model. Although

the total effects of religiosity and sex guilt were very mild, they

were almost twice the magnitude in the female than the male model. Con-

ventional religious beliefs as well as sex guilt appeared to have a

greater inhibiting effect upon the females than the males in using a

reliable birth control device.

The present age of the student appeared to be more influential in

the male's causal model than in the female's. The total effect of age,

however, was relatively weak in both the models.

The influence of the approval the student perceived from his or

her close friends for engaging in premarital coitus upon the use of

birth control was stronger for males than for females. It appeared

that males, peer approval for premarital intercourse was likely to

increase the likelihood of using a reliable contraceptive, while peer

approval had only a slightly positive effect for females.

For both males and females, the perceived number of close friends

thought to have had premarital intercourse had a negative, direct effect

upon the use of reliable contraception. For the males, this was in

apparent contradiction to Needle's finding which showed that those males

who felt the majority of their peers were nonvirgins were more likely to

have been reliable contraceptors than those males who thought most of

their friends were virgins. Further, the influence of this variable was greater in the male model than in the female model.

Lastly, the perceived use of contraception among close friends, while having a positive effect upon the dependent variable in both the male and female models, was slightly more influential in the latter model. It appeared, in summary, that while one's peer's sexual behavior and approval for premarital coitus were more influential for the males, the use of birth control by peers was more influential for the females.

Theory Trimming

In the male and female models, all path coefficients less than .05 were assumed to be zero and were deleted. In the male model, this resulted in the removal of two paths, Path L which indicated the direct effect of religiosity upon the use of a reliable contraceptive, and Path V which indicated the direct effect of age upon the number of close friends thought to be nonvirgins. In the female model the following four paths were assumed to have coefficients equal to zero and were therefore deleted: Path J, the effect of sex guilt upon the frequency of dating; Path B, the effect of coital frequency upon the use of reliable contraception; Path N, the effect of age upon the use of reliable contraception; and, Path R, the direct effect of close friend approval for premarital coitus upon the use of reliable contraception.

The slightly more parsimonious models (Diagram 4 and 5) accounted for virtually the same percentage of variance as did the original models. Specifically, the new male path model accounted for 19.6 percent of the total variance while 19.7 percent of the variance in the original model
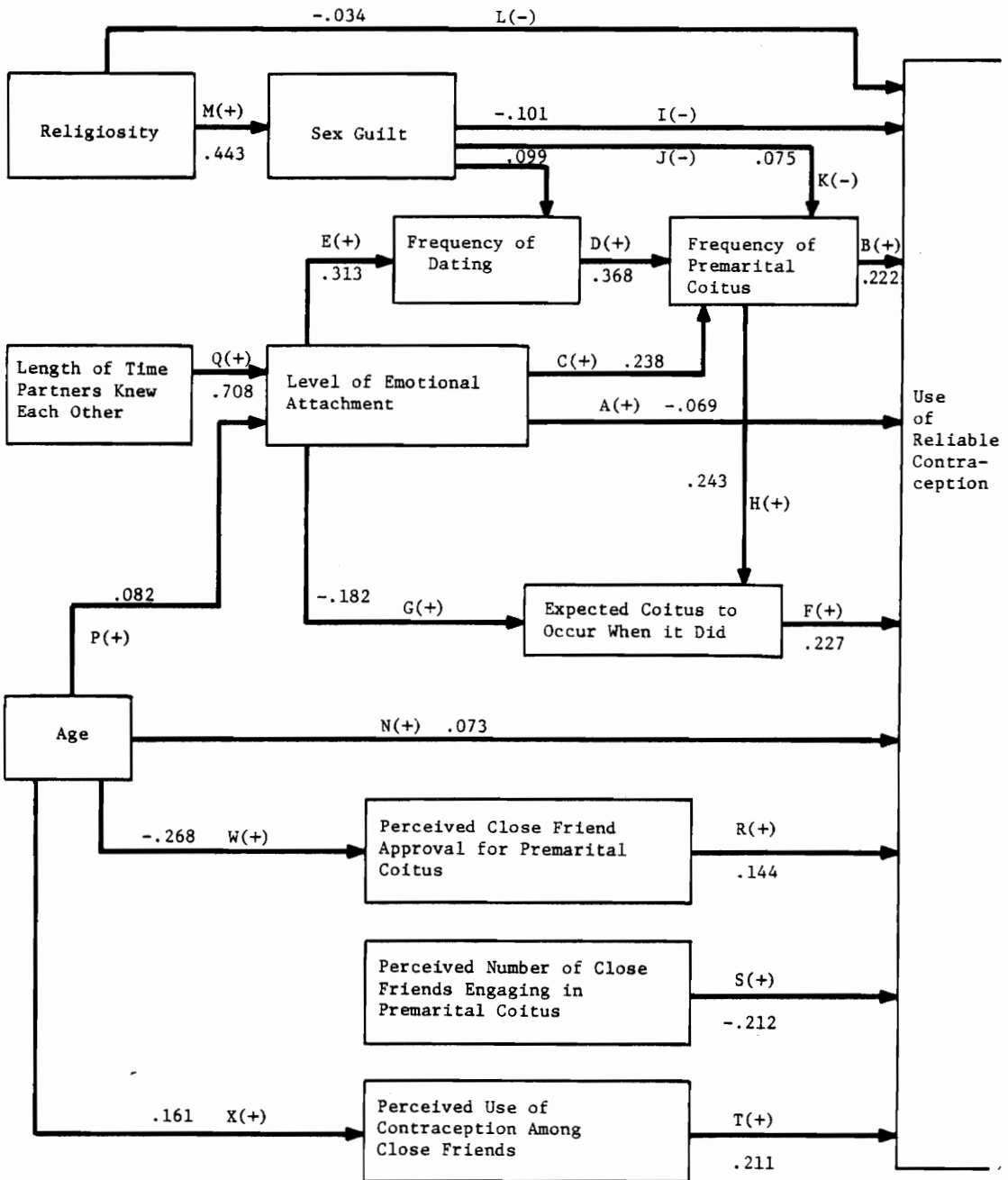
Diagram 4
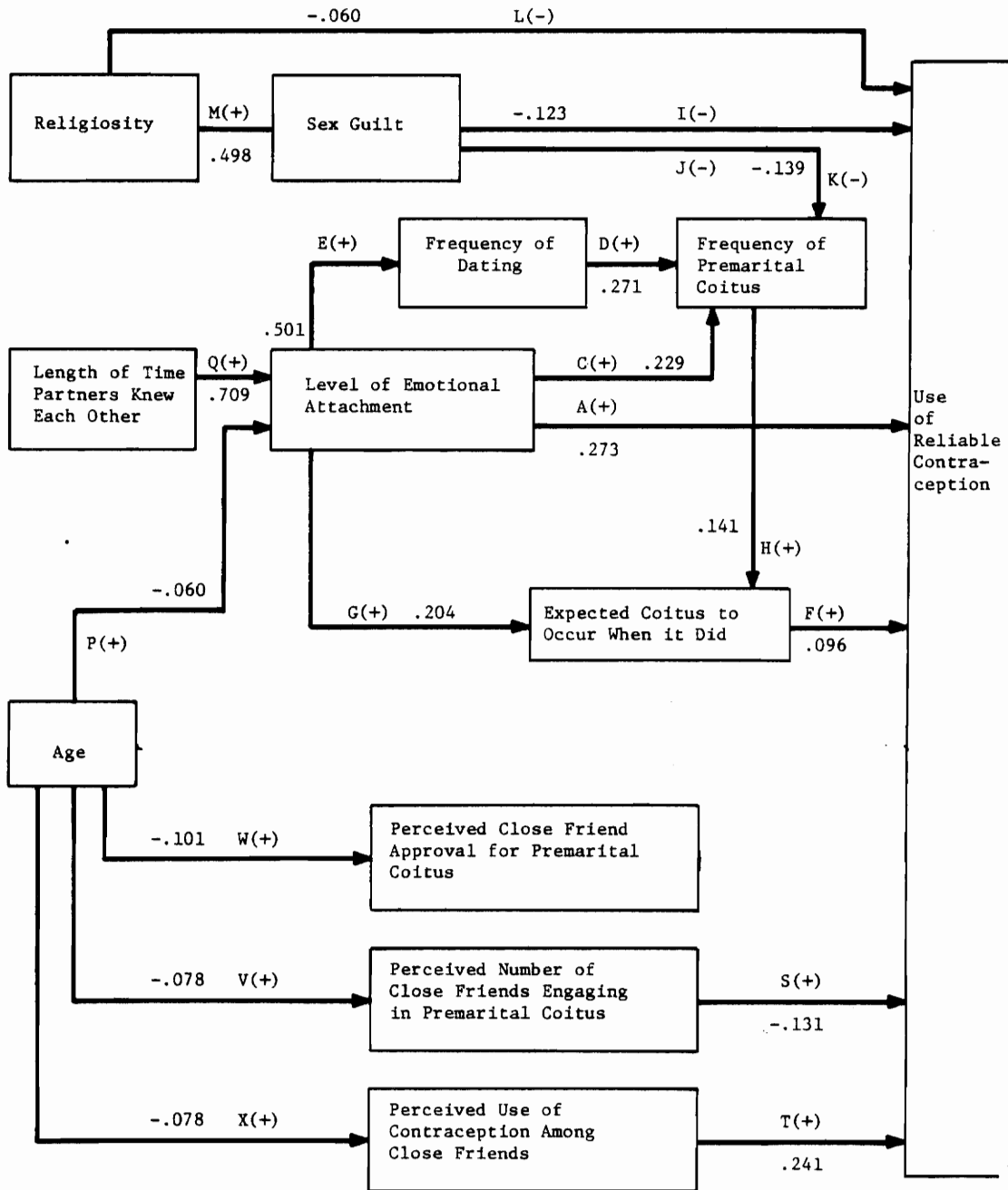
Trimmed Path Model-Male

Diagram 5

Trimmed Path Model-Female

was explained. In the revised female path model, 14.8 percent of the variance was accounted for, while 14.9 percent of the variance in the original female model was explained. Further, the change in the path coefficients resulting from the deletion of paths was very slight in both the male and female models. The change in the value of the path coefficients was small enough that a renewed discussion of the path models is not warranted.

CHAPTER V

Summary

The purpose of the present study was to develop separate causal models for male and female college students relative to the use of premarital contraception. The predictor variables included in each model were chosen on the basis of either prior empirical evidence linking the predictor variables with premarital contraceptive practices or on the basis of previous theoretical writings.

Descriptive Analysis

Self-administered questionnaires were sent to 1,237 dormitory residents at Virginia Polytechnic Institute and State University during the beginning of the spring quarter, 1978. The students were systematically selected from a student directory published by the university. Forty-three percent of the sample (36.8% males and 49.1% females) returned usable questionnaires. Of the males who returned the questionnaire, 63.9 percent had had premarital coitus. Sixty-four percent of the females who returned the questionnaires had had premarital coitus. The average age of those students who were sexually active was 19.3 among both males and females. The majority of both sexes were either freshmen or sophomores.

Among those students who were nonvirgins, more than half of the males and females had had premarital coitus by age 18. Almost three-quarters of the males reported having coitus four times or less over a four week period. Among the females, 61.2 percent reported having coitus less than four times over the same four week period.

Forty-seven percent of the males classified their most recent sex partner as someone they loved. Twenty-one percent said they planned to marry that person with whom they last had coitus. For the females, 61.1 percent were in love with their most recent sex partner, with 32.7 percent classifying their last sex partner as someone they were in love and planning to marry. The females classified their most recent sex partner at a significantly higher level of emotional attachment than did the males.

In terms of the students' contraceptive practices, during their last sexual intercourse, the pill was the most commonly used method of birth control. Oral contraceptives were used by 38.4 percent of the females and 32.7 percent of the males' sex partner. The condom was the second most commonly used method of birth control by males and females. One in five males reported not using any method of contraception, while almost one in ten females reported not using birth control during their last intercourse. In all, 38.5 percent of the males and 28 percent of the females used either no method of birth control or used an unreliable method of birth control during their most recent coital experience.

Protestant males were more likely to have been reliable contraceptors during their last coitus than Catholic males. While one-half of the Catholic males were reliable contraceptors, over 70 percent of the Protestants were reliable contraceptors. No relationship was found between age at first intercourse for males and whether they were reliable contraceptors. There was, however, a moderate association, although not a statistically significant one, between the use of a

reliable birth control device at last intercourse and coital frequency among males.

Also, there was a moderately, positive association between the use of a reliable contraceptive and the level of emotional attachment the male had towards his female sex partner. Fifty-four percent of the males who classified their last sex partner as a pick-up or casual date were unreliable contraceptors, while of those males who classified their last sex partner as someone they intended to marry, 22.8 percent were unreliable contraceptors.

It also appeared that, among males, as the level of emotional attachment increased, so did the percentage who reported that they always use some method of birth control. Over one-half of the males, who last had coitus with a person they planned to marry, reported always using birth control whereas only one-quarter of the males whose last sex partner was a pick-up or casual date reported always using birth control.

Looking at factors related to the female's use of contraception, no relationship was found between her age at first intercourse and whether she was a reliable contraceptor during her last intercourse. There also appeared to be no relationship between a female's religious background and her use of a reliable contraceptive. While 75 percent of the Protestant females were reliable contraceptors during their last coitus, 72 percent of the Catholic females were also reliable contraceptors.

There was a weak association between coital frequency and the female's use of a reliable contraceptive. Females who engaged in coitus

four or more times in a four week period were slightly more likely to have used a reliable method of birth control at their last coitus than females who engaged less often in coitus over the same four week period. This association, however, was likely to have been largely spurious. The path analysis later performed revealed a very weak effect of coital frequency upon the use of a reliable contraceptive.

There appeared to be a positive association between the use of reliable contraception and the level of emotional attachment for females. Specifically, there was a dramatic increase in the proportion of females who used the pill in the two highest levels of emotional attachment. Generally, the percentage of females who were reliable contraceptors increased as the level of emotional attachment increased.

A strong association existed between the females' coital frequency and whether they always use contraception. The more sexually active females were the most likely to have reported that they always use contraception. Finally, females who had expected intercourse to have occurred when it did were less likely to have been unreliable contraceptors than females who did not expect intercourse to have occurred when it did. This association, however, appeared in the path analysis procedure to have been largely spurious due to a preceding variable, emotional attachment.

Causal Models

Original causal models representing premarital use of contraception were tested separately for the males and females. Among the males, the data indicated that coital frequency and whether they expected coitus

to occur when it did were the two most influential predictor variables regarding the use of a reliable contraceptive. It also appeared that the males' peers were moderately influential in their use of birth control. Specifically, the greater the perceived close friend approval for premarital coitus and the greater the number of close friends thought to always use birth control, the greater the probability the males themselves were reliable contraceptors. It was hypothesized that the greater the number of close friends who engaged in premarital coitus, the greater the likelihood the males would be reliable contraceptors. Results, however, showed the opposite: the greater the number of non-virginal close friends, the greater the likelihood the males were unreliable contraceptors.

Contrary to what was hypothesized in the path model, the level of emotional attachment in the male-female dyad had a very small effect upon the use of reliable contraception for males. It appeared that for the males, the effect emotional attachment had upon birth control use was best explained by incorporating coital frequency and whether they expected coitus to occur as intervening variables. That is, as emotional attachment increases, so does the likelihood of the males using reliable contraceptives. Further, as coital frequency increases, so does the likelihood that the males will expect coitus to occur when it does. This, in turn, also increases the likelihood that the males will use a reliable method of birth control.

It was also found, however, that as emotional attachment increased, the likelihood the males expected coitus to occur decreased. It was speculated that a reason for this result was that males who date

casually may date mainly for sexual purposes and, therefore, because they are seeking intercourse, they are not surprised when it does occur. Males involved in relationships with females at a higher level of attachment, on the other hand, may have intercourse more spontaneously and at times other than on a formal "date."

In the causal model, it was hypothesized that the males' sex guilt level and degree of conventional religiosity would have a negative effect upon the use of reliable birth control. The data indicated that the path coefficients, although in the predicted direction, were relatively weak. It was therefore concluded that sex guilt and conventional religious beliefs played a minor role in the use of reliable contraception.

Finally, it was hypothesized that the males' age would have an influence upon the use of reliable birth control, with older males being more likely to be reliable contraceptors than younger males. Although the path coefficient was in the predicted direction, it was concluded that age had a very minor effect upon the use of reliable contraception.

For the female causal model, the level of emotional attachment and the number of close friends thought to always use birth control appeared to have the most influence upon the use of reliable contraception. As both variables increased, so did the probability that the female was a reliable contraceptor during her most recent sexual intercourse.

Although emotional attachment appeared to have been a positive influence upon both coital frequency and whether the female expected

intercourse to occur when it did, neither of these variables had any-
thing greater than a very minor, almost non-existent, effect upon the
use of reliable contraception. These findings, then, were contradic-
tory to the males' findings that emotional attachment was a minor in-
fluence upon the use of birth control while coital frequency and
expecting coitus to occur were moderately influential upon the use
of birth control.

It was hypothesized that conventional religious beliefs and sex
guilt would have inhibiting effects upon the use of a reliable contra-
ceptive among females. It was found that the greater the female's sex
guilt and the more conventional her religious beliefs, the less likely
she used a reliable birth control device during her last coitus. Both
influences, however, were relatively minor with the level of sex guilt
having a slightly greater influence upon the use of reliable birth con-
trol than religiosity.

A comparison of the relative influences upon the use of reliable
birth control in the male model to the female model revealed a large
difference in the influence of emotional attachment upon the use of
birth control. In the male model, emotional attachment had virtually
no effect whereas in the female model, emotional attachment was the
most influential variable. Further, whereas for the males, coital fre-
quency was the most influential variable, among the females, coital
frequency had an almost nonexistent influence upon the use of reliable
birth control.

It was found that the greater the perceived close friend approval
for premarital coitus, the greater the probability that the female was

a reliable contraceptor. The influence of close friends approval, however, was extremely weak. Also, as hypothesized, the greater the number of close friends who are thought to always use birth control, the greater the likelihood the female, herself, was a reliable contraceptor during her last coitus. This latter independent variable was the second most influential variable within the female causal model. Lastly, it was hypothesized that the greater the number of close friends the female thought were engaging in premarital coitus, the greater the likelihood she would be a reliable contraceptor. Results showed, however, the converse to that predicted: the greater the number of nonvirginal close friends, the less likely the female was a reliable contraceptor during her last coitus.

It appeared, then, that the process by which males and females come to use reliable birth control may differ. For females, central to understanding their use of birth control was the nature of the male-female relationship in which the female was involved. For males, on the other hand, their level of sexual behavior may be central to better understanding the process by which they come to use contraception. Finally, the use of reference groups appeared to be of some benefit towards better understanding the use of contraception for both males and females.

Implications

Methodological Implications

Analysis of the data revealed that the multiple correlation coefficients, were statistically significant for the male and female path models; the multiple correlation coefficient for the male model was

.443 (F = 2.20, p < .05), and for the female model, .387 (F = 2.17, p < .05). This meant that a statistically significant proportion of the variance, .197, was accounted for by the male path model. The female model also accounted for a statistically significant proportion of the variance, .149.

One possible explanation for the modest R^2 found for either model is the measurement of the independent and the dependent variables are subject to variable errors of measurement. Due to chance errors it is very likely that the correlations found in this study are lower than the correlations between true measures of those same traits (Walker and Lev, 1969). In other words, due to variable errors of measurement there has most likely been a reduction in the magnitude of the correlation coefficient for this study.

Much discussion has been focused on the proportion of variance explained. Yet we must be careful not to pay too much attention to the magnitude of R^2 (Duncan, 1975). Nor, as widely believed, is the magnitude of R^2 sufficient grounds in which to judge the tenability of a model. "High values of R^2, in themselves, are not sufficient to evaluate a model as successful" (Duncan, 1975:66). Rather, it is probably more helpful and informative to discuss the relative strengths of the path coefficients within the model than to look primarily at the R^2 (Klemmack and Edwards, 1973).

Although suggestions to include other variables within the models developed in the present study are given below, Duncan (1975) also warned researchers not to pay too much attention to the effort to increase R^2 such as simply increasing the number of variables in a

model. "Merely increasing R^2 by lengthening the list of regressors is no great achievement unless the role of those variables in an extended causal model is properly understood and correctly represented" (Duncan, 1975:65).

Duncan concluded his argument against focusing too much concern on R^2 writing:

> Before worrying too much about his R^2, therefore, the investigator does well to reconsider the entire specification of the model. If that specification cannot be faulted on other grounds, the R^2 as such is not sufficient reason to call it into question. (p. 66)

One of the greatest advantages of path analysis as a tool for theory testing is the fact that this analytic procedure forces the researcher to be explicit in hypothesizing how two or more variables are related (Wolfle, 1978). Specifically, path analysis requires the researcher to think in terms of cause (Wolfle, 1977). In building the path model the researcher is forced to consider not only the possible effects that a large number of independent variables had upon the dependent variable, but also the interrelationships among the independent variables themselves. The use of path analysis is also helpful in that it encourages the researcher to view a behavior or social phenomenon, such as the use of contraception, as a process. In short, the use of the path analytic procedure is helpful in terms of thinking about, and testing, theory. It is suggested that future research systematically build upon past research findings in an integrating fashion. The path analytic procedure may be one of the more useful tools in meeting this goal.

Theoretical Implications

It is likely that future refinement of the measurement of the dependent variable, the use of reliable birth control, will be important in later research. In the present study the use of all methods of reliable birth control were assumed to be applicable to the identical theoretical model. However, circumstances in which a female uses an oral contraceptive may not be the same circumstances in which another female uses the diaphragm or the condom. In the present study, however, all three of these methods of contraception were coded the same. It may be helpful in the future to look at not only whether a reliable or unreliable contraceptive was used, but also to determine which method of reliable or unreliable contraceptive was used.

Further, because the most effective methods of contraception are female-linked, the majority of theoretical models, including those presented in this study, measure female activity (DeLamater and McCorquodale, 1978). It might be necessary, then, in the future to limit the dependent variable in the male model to the use of condoms and withdrawal (DeLamater and MacCorquodale, 1978).

Also, the causal models were tested using data pertinent only to the students' latest sexual intercourse. It was assumed that the students' latest coitus was representative of their sexual and contraceptive practices. Yet this may not be the case. It appeared that student use of contraception is irregular at best. It is clear that neither the male nor female model was any more than moderately successful in explaining the use of contraception for one specific occasion. In summary, to investigate the use of contraception on only one occasion may not be very productive.

Finally, results from the DeLamater and MacCorquodale study, as well as from the present study, appear to support Rains' theory (1971) more adequately than Reiss et al.'s theory (1975). Present findings, for example, showed sex guilt and religiosity having relatively little influence upon the use of birth control while the level of emotional attachment and coital frequency played significant roles in influencing the use of contraception among females and males, respectively. Direction for future research, then, may be most productive in continuing to deal with interpersonal relationships and the unmarrieds' sexual and contraceptive history.

Recommendations

Methodological Recommendations

The majority of studies done in the area of sexual behavior have had the same major drawback -- a restricted sample (DeLamater, 1974). The present study is no exception. It is suggested that future research in the area of premarital contraceptive practices attempt to shift the focus to include high school age students as well as single persons not in college. While the difficulty of obtaining entrance in secondary schools has special problems not encountered in the present study, the data obtained could lead to a better understanding of the use of contraception.

It is also recommended that future research that obtains data from college students include in the sampling procedures individuals who reside in off-campus housing as well as on-campus housing. The difference between the sexual practices of on-campus students and off-campus students has been previously documented (Parcel, 1974). The effort to

obtain a more representative sample in later studies may further the current understanding of premarital contraceptive practices.

Lastly, it is recommended that the use of interviews be employed in some of the future studies. Although interviews are more time consuming and usually more costly, they allow the researcher the opportunity to seek in greater detail the sexual and contraceptive history of the respondents. Also, through the use of interviews new influences, previously overlooked, may emerge.

Theoretical Recommendations

It has been mentioned that the male causal model accounted for 20 percent of the variance while the female model accounted for 15 percent of the variance. One implication of these findings is that even upon considering measurement errors and sampling inadequacies, a large and significant portion of the variance was unexplained. It is suggested that further work in the area of premarital usage of contraception needs to be done in identifying other predictor variables which influence the contraceptive practices of unmarried persons.

Recent research by DeLamater and MacCorquodale (1978) provides some direction for including three new predictor variables in a revised causal model. The three variables are:

1. whether the single college female had one coital partner/ relationship versus having two or more,

2. "the frequency with which the respondent discussed contraception prior to engaging in intercourse with a partner for the first time" (p. 242),

3. the number of coital experiences during the female's lifetime.

Finally, research by Parcel (1974, 1975) indicates that there may be a relationship between a person's attitude toward the use of contraception in premarital coitus and his or her use of contraception. Parcel (1975) found that college students who were seeking contraceptive services from the university health clinic had a more favorable view toward the use of contraception than a sample of university students. It would also be constructive to examine if a person's attitude toward the personal use of contraception is related to past experience with contraception (Parcel, 1975), knowledge about contraceptive practices, and current sexual and contraceptive practices.

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APPENDIX

Table A

Original R Matrix - Male

	Age	Dating Frequency	Coital Frequency	Emotional Attachment	Length of Time	Contra- ceptive Method	Antici- pating Coitus	Peer Sexual Activity	Peer Contra- ceptive Usage	Peer Approval	Religiosity	Sex Guilt
Age	1.000	.076	.057	.105	.033	.042	-.107	.028	.161	-.268	.085	.015
Datefreq		1.000	.459	.334	.118	.005	.038	-.056	.034	-.069	.117	.165
Sexfreq			1.000	.376	.161	.226	.175	-.084	-.017	-.061	.026	.185
LEA				1.000	.711	-.034	-.091	-.300	-.294	-.115	.261	.210
Datetime					1.000	.016	-.103	-.265	-.324	.045	.208	.229
Typebc						1.000	.275	-.064	.167	.102	-.167	-.143
Expsex							1.000	.080	-.003	.128	-.108	-.100
Peersex								1.000	.346	.275	.070	-.135
Peerbc									1.000	-.085	-.111	-.150
Peerap										1.000	-.200	-.308
Religious											1.000	.443
Sexguilt												1.000

Table B

Original R Matrix - Female

	Age	Datefreq	Sexfreq	LEA	Datetime	Typebc	Expsex	Peersex	Peerbc	Peerap	Religious	Sexguilt
Age	1.000	-.033	.082	.043	.145	.066	-.047	-.078	.078	-.101	-.030	-.173
Datefreq		1.000	.369	.501	.277	.022	.137	.018	-.018	.065	.210	.117
Sexfreq			1.000	.335	.245	.096	.209	.128	.000	.103	-.098	-.058
LEA				1.000	.700	.258	.251	-.282	-.150	-.184	.279	.215
Datetime					1.000	.266	.232	-.201	-.051	-.014	.238	.099
Typebc						1.000	.182	-.057	.135	.022	-.064	-.138
Expsex							1.000	-.002	-.029	.052	-.052	-.178
Peersex								1.000	.633	.502	-.022	.012
Peerbc									1.000	.313	-.104	-.123
Peerap										1.000	-.052	-.221
Religious											1.000	.498
Sexguilt												1.000

Table C

Means and Standard Deviations

	Males		Females	
	$\overline{X}$	S.D.	$\overline{X}$	S.D.
Age	3.29	1.10	3.44	1.22
Frequency of dating	4.79	2.18	6.05	2.55
Coital frequency	4.84	2.79	5.00	2.89
Level of emotional attachment	3.56	1.32	3.92	1.18
Use of reliable contraception	1.72	.45	1.74	.44
Expected coitus to occur when it did	1.68	.47	1.78	.41
Number of peers engaging in premarital coitus	4.30	1.45	4.14	1.42
Number of peers using birth control	3.13	1.51	3.04	1.29
Peer approval for premarital coitus	5.87	1.28	5.79	1.34
Level of conventional religiosity	10.27	4.58	10.21	3.53
Level of sex guilt	-16.21	16.85	-44.70	13.56
Length of time partners knew each other	5.41	2.68	5.59	2.69

Table D

Relationship Between Sex of Respondent

and Age at First Sexual Intercourse

	14 years or younger	15 years	16 years	17 years	18 years	19 years	20 years	21 years or older
Male	13	12	32	47	36	20	4	1
Female	9	17	26	37	49	14	10	3

$x^2 = 10.19$

$df = 7$

$p > .15$

Table E

Male's Age at First Coitus and Being a Reliable

Contraceptor During Latest Coitus

	Age 14–17 Years	Age 18 or Older
Unreliable Contraceptor	40	22
Reliable Contraceptor	61	38

x^2 = .137

df = 1

p > .50

Table F

Female's Age at First Coitus and Being a Reliable

Contraceptor During Latest Coitus

	Age 14-17 Years	Age 18 or Older
Unreliable Contraceptor	26	19
Reliable Contraceptor	62	57

$X^2 = .423$

df = 1

p > .50

Dear student,

You have been uniquely selected to be part of a group of students who have been asked to participate in a campus-wide study at VPI&SU. Only one student in twenty was chosen for this study. In a few days you will receive a questionnaire to fill out. Completing the question-naire consists only of checking or circling the responses you pick. It will only take you 15 minutes to fill out and you can return the completed questionnaire through the campus mail.

Your anonymity is guaranteed. There will be no way for us to trace the questionnaire back to you. Your participation in this study is very important in determining the success of this research project. Your cooperation will be greatly appreciated. Thank you.

Alan R. Sack, doctoral candidate
Wallace Annex
VPI&SU

Doctoral committee
James F. Keller, Ph.D. (Chairman)
Joseph Maxwell, Ph.D.
Howard O. Protinsky, Ph.D.
John N. Edwards, Ph.D.
Dennis Hinkle, Ph.D.

COLLEGE OF HOME ECONOMICS

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF MANAGEMENT, HOUSING AND FAMILY DEVELOPMENT

Dear student,

This letter is being sent to thank you for participating in the study we are carrying out on sexual and contraceptive practices. Your cooperation is greatly appreciated. If you have not yet returned the completed questionnaire would you please do so within the next two days. The success of this study depends largely upon your participation.

Thanks again.

Alan R. Sack, doctoral candidate
Wallace Annex
VPI&SU

How do you think the following people would feel about you if you had sexual intercourse with someone you loved? (Skip number 26 and 27 if they do not apply to you)

	VMD	MD	SD	N	SA	MA	VMA
25. Close personal friends	(1)	(2)	(3)	(4)	(5)	(6)	(7)
26. Sorority sisters or fraternity brothers	(1)	(2)	(3)	(4)	(5)	(6)	(7)
27. Members of your church	(1)	(2)	(3)	(4)	(5)	(6)	(7)
28. Mother	(1)	(2)	(3)	(4)	(5)	(6)	(7)
29. Father	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Please answer the following six questions by marking (1) if you definitely disagree with the statement; (2) if you slightly disagree; (3) if you slightly agree; (4) if you definitely agree.

	DD	SD	SA	DA
30. Everyone should believe in and practice some religion	(1)	(2)	(3)	(4)
31. The best way to foster the moral development of civilization is through organizing religion	(1)	(2)	(3)	(4)
32. There should be stricter observance of the Sabbath, the religious day of rest	(1)	(2)	(3)	(4)
33. The world moves in an evolutionary process of unfolding rather than through divine guidance	(1)	(2)	(3)	(4)
34. There is an almighty God who watches over us	(1)	(2)	(3)	(4)
35. There is a life after death	(1)	(2)	(3)	(4)

Mosher F-C Inventory
Form F

This inventory consists of a number of pairs of statements or opinions which have been given by college women in response to the "Mosher Incomplete Sentences Test." These women were asked to complete phrases such as "When I tell a lie..." and "To kill in war..." to make a sentence which expressed their real feelings about the stem. This inventory consists of the stems to which they responded and a pair of their responses which are lettered A and B.

You are to read the stem and the pair of completions and decide which you most agree with or which is most characteristic of you. Your choice, in each instance, should be in terms of what you believe, how you feel, or how you would react, and not in terms of how you think you should believe, feel, or respond. This is not a test. There are no right or wrong answers. Your choices should be a description of your own personal beliefs, feelings, or reactions.

In some instances you may discover that you believe both completions or neither completion to be characteristic of you. In such cases select the one you more strongly believe to be the case as far as you are concerned. Be sure to find an answer for every choice. Do not omit an item even though it is very difficult for you to decide, just select the more characteristic member of the pair. Encircle the letter A or B, which you most agree with.

1. If in the future I committed adultery.....
   A. I hope I would be punished very deeply.
   B. I hope I enjoy it.

2. "Dirty" jokes in mixed company.....
   A. do not bother me.
   B. are something that make me very uncomfortable.

3. Masturbation.....
   A. helps one feel eased and relaxed.
   B. is wrong and will ruin you.

4. Sex relations before marriage.....
   A. should be permitted.
   B. are wrong and immoral.

5. If in the future I committed adultery.....
   A. I would be unworthy of my husband.
   B. I would have a good reason.

6. If I committed a homosexual act.....
   A. it would be my business.
   B. it would show weakness in me.

7. When I was a child, sex.....
   A. was not talked about and was a feared word.
   B. was fun to think about.

8. When I have sexual dreams.....
   A. I sometimes wake up feeling excited.
   B. I try to forget them.

9. "Dirty" jokes in mixed company.....
   A. can be funny depending on the company.
   B. are in bad taste.

10. Petting.....
    A. is an expression of affection which is satisfying.
    B. I am sorry to say is becoming an accepted practice.

11. Unusual sex practices.....
    A. are not so unusual.
    B. don't interest me.

12. "Dirty" jokes in mixed company.....
    A. disgust me.
    B. do not bother me as long as they are just in fun.

13. If I had sex relations, I would feel.....
    A. very dirty.
    B. happy and satisfied.

14. Sex.....
    A. is good and enjoyable.
    B. should be saved for wedlock and childbearing.

15. When I have sexual desires.....
    A. I enjoy it like all healthy human beings.
    B. I fight them for I must have complete control
        of my body.

16. Prostitution.....
    A. makes me sick when I think about it.
    B. needs to be understood.

17. Unusual sex practices.....
    A. might be interesting.
    B. are disgusting and revolting.

18. Sex relations before marriage.....
    A. are disgusting and unnecessary.
    B. are O.K. if both partners are in agreement.

19. Masturbation.....
    A. is sickening.
    B. is understandable in many cases.

20. If in the future I committed adultery.....
    A. I would resolve not to commit the mistake again.
    B. I would hope there would be no consequences.

21. Unusual sex practices.....
    A. are all in how you look at it.
    B. are unwise and lead only to trouble.

22. Petting.....
    A. is just asking for trouble.
    B. can lead to bigger and better things.

23. When I have sexual desires.....
    A. I know it's only human, but I feel terrible.
    B. I usually express them.

24. If I had sex relations, I would feel.....
    A. guilty, sinful and bad.
    B. happy if I loved the boy and he loved me.

25. Masturbation.....
    A. is stupid.
    B. is a common thing in childhood.

26. Unusual sex practices.....
    A. are the business of those who carry them out and no
        one else's.
    B. are dangerous to one's health and mental condition.

27. Petting.....
    A. is justified with love.
    B. is not a good practice until after marriage.

28. When I have sexual desires.....
    A. I try to go to sleep and forget them.
    B. I become easily aroused.

29. If I had sex relations, I would feel.....
    A. cheap and unfit for marriage.
    B. warm and very good.

30. Sex relations before marriage.....
    A. ruin many a happy marriage.
    B. might help the couple to understand each other and
        themselves.

31. Masturbation.....
    A. is a normal outlet for sexual desires.
    B. is wrong and a sin.

32. Petting.....
    A. depends on whom I'm with.
    B. is against my better judgment but hard to resist for
        some.

33. Masturbation.....
    A. is all right.
    B. is a form of self destruction.

34. Unusual sex practices.....
    A. are all right if both partners agree.
    B. are awful and unthinkable.

35. If I committed a homosexual act.....
    A. I would want to be punished.
    B. I would be discreet.

36. When I have sexual desires.....
    A. I attempt to repress them.
    B. I sometimes think of past experiences.

37. If I had sex relations, I would feel.....
    A. all right, I think.
    B. I was being used not loved.

38. Sex relations before marriage.....
    A. are not good for anyone.
    B. with the person I hope to marry is O.K.

39. "Dirty" jokes in mixed company.....
    A. should be avoided.
    B. are acceptable up to a point.

Do not put your name or any identifying marks on this questionnaire. There is no way that this questionnaire can be traced back to you. With this assurance we urge you to fill out this form as honestly as you can. In order for this study to be successful it is important that you fill out this form completely and then return it by using the enclosed return envelope.

In choosing your responses fill the number that is enclosed in the parentheses. For example, if you pick response number 4 it should look like this: (1) (2) (3) ●. You may use use either a pen or pencil. After completing the entire questionnaire please place it inside the enclosed return envelope and place it in a mailbox designated for on-campus mail. Thank you very much for your time and cooperation.

                                         Alan R. Sack, doctoral candidate

1. What is your present age?	(1)	17 years or younger
	(2)	18
	(3)	19
	(4)	20
	(5)	21
	(6)	22
	(7)	23
	(8)	24
	(9)	25 years or older
2. Sex:	(1)	Male
	(2)	Female
3. Year in school:	(1)	Freshman
	(2)	Sophomore
	(3)	Junior
	(4)	Senior
	(5)	Graduate student
	(6)	Other
4. Are you affiliated with a social fraternity or sorority?	(1)	Yes
	(2)	No
5. What is your present marital status?	(1)	Single, never married
	(2)	Currently married
	(3)	Divorced
	(4)	Separated
	(5)	Widowed
	(6)	Living with a member of the opposite sex
6. What religion were you brought up in?	(1)	Protestant
	(2)	Catholic
	(3)	Jewish
	(4)	Other
	(5)	None
7. Presently, how religiously devout are you?	(1)	None at all
	(2)	A little devout
	(3)	Moderately devout
	(4)	Very devout
8. How many dates have you had in the past four weeks? (Include "dates" with your boyfriend or girlfriend)	(1)	None
	(2)	One to two
	(3)	Three to four
	(4)	Five to six
	(5)	Seven to eight
	(6)	Nine to ten
	(7)	Eleven to twelve
	(8)	Thirteen to fourteen
	(9)	Fifteen or more
9. How old were you the first time you had sexual intercourse?	(1)	Never had sexual intercourse
	(2)	14 years old or younger
	(3)	15
	(4)	16
	(5)	17
	(6)	18
	(7)	19
	(8)	20
	(9)	21 years or older

IF YOU HAVE NEVER HAD SEXUAL INTERCOURSE PLEASE SKIP TO QUESTION 18

10. Since coming to college this past fall how many times on the average have you had sexual intercourse?	(1)	None
	(2)	Less than once a month
	(3)	About once a month
	(4)	Twice a month
	(5)	Three times a month
	(6)	Four times a month
	(7)	Five times a month
	(8)	Six times a month
	(9)	Seven or more times a month

11. How many times have you had intercourse in the past four weeks?
- (1) None
- (2) Once
- (3) Twice
- (4) Three times
- (5) Four times
- (6) Five times
- (7) Six times
- (8) Seven times
- (9) Eight or more times

12. When was the last time you had sexual intercourse?
- (1) Within the last week
- (2) Within the last two weeks
- (3) Within the last three weeks
- (4) Within the last four weeks
- (5) Within the last five weeks
- (6) Within the last six weeks
- (7) Within the last seven weeks
- (8) More than seven weeks ago

13. How would you classify your partner at the time of your last intercourse?
- (1) A pickup or casual date
- (2) Someone you dated often, but to whom you were not emotionally attached
- (3) Someone to whom you were emotionally attached but not in love
- (4) Someone with whom you were in love
- (5) Someone with whom you were in love and planning to marry
- (6) MALES ONLY: A prostitute

14. How long have you been dating the person with whom you last had intercourse?
- (1) Less than one month
- (2) One to two months
- (3) Three to four months
- (4) Five to six months
- (5) Seven to eight months
- (6) Nine to ten months
- (7) Eleven to twelve months
- (8) More than twelve months

15. What did you or your partner use to prevent pregnancy the last time you had intercourse?
- (1) Nothing
- (2) Condom (rubber)
- (3) Withdrawal
- (4) Diaphragm and/or spermicidal foam
- (5) Birth control pills
- (6) Rhythm method
- (7) Intra-uterine device (IUD)
- (8) Douche
- (9) Do not know

16. Regarding the last time you had intercourse which statement most applies to you?
- (1) I did not expect intercourse to occur when it did
- (2) I did expect intercourse to occur when it did

17. When having intercourse, how often do you or your partner use contraception? (Do NOT include the method of withdrawal)
- (1) Never
- (2) Not much of the time
- (3) Some of the time
- (4) Most of the time
- (5) All the time

18. Of the five specific friends of your own sex and age you know best how many have had premarital intercourse during the past year? (If in doubt about a person assume they did not have premarital intercourse)
- (1) None
- (2) One
- (3) Two
- (4) Three
- (5) Four
- (6) Five

19. Of the five specific friends of your own sex and age you know best who are currently engaging in premarital intercourse how many do you think always use birth control?
- (1) None
- (2) One
- (3) Two
- (4) Three
- (5) Four
- (6) Five

How do you think the following people would feel about you if you had sexual intercourse with a casual date? VMD=very much disapprove; MD=moderately disapprove; SD= slightly disapprove; N=neutral; SA=slightly approve; MA=moderately approve; VMA=very much approve (Skip number 21 and 22 if they do not apply to you)

	VMD	MD	SD	N	SA	MA	VMA
20. Close personal friends	(1)	(2)	(3)	(4)	(5)	(6)	(7)
21. Sorority sisters or fraternity brothers	(1)	(2)	(3)	(4)	(5)	(6)	(7)
22. Members of your church	(1)	(2)	(3)	(4)	(5)	(6)	(7)
23. Mother	(1)	(2)	(3)	(4)	(5)	(6)	(7)
24. Father	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Do not put your name or any identifying marks on this questionnaire. There is no way that
this questionnaire can be traced back to you. With this assurance we urge you to fill out
this form as honestly as you can. In order for this study to be successful it is important
that you fill out this form completely and then return it by using the enclosed return
envelope.

In choosing your responses fill the number that is enclosed in the parentheses. For example,
if you pick response number 4 it should look like this: (1) (2) (3) ●. You may
use use either a pen or pencil. After completing the entire questionnaire please place
it inside the enclosed return envelope and place it in a mailbox designated for on-campus mail.
Thank you very much for your time and cooperation.

Alan R. Sack, doctoral candidate

1. What is your present age?	(1) 17 years or younger
	(2) 18
	(3) 19
	(4) 20
	(5) 21
	(6) 22
	(7) 23
	(8) 24
	(9) 25 years or older
2. Sex:	(1) Male
	(2) Female
3. Year in school:	(1) Freshman
	(2) Sophomore
	(3) Junior
	(4) Senior
	(5) Graduate student
	(6) Other
4. Are you affiliated with a social fraternity or sorority?	(1) Yes
	(2) No
5. What is your present marital status?	(1) Single, never married
	(2) Currently married
	(3) Divorced
	(4) Separated
	(5) Widowed
	(6) Living with a member of the opposite sex
6. What religion were you brought up in?	(1) Protestant
	(2) Catholic
	(3) Jewish
	(4) Other
	(5) None
7. Presently, how religiously devout are you?	(1) None at all
	(2) A little devout
	(3) Moderately devout
	(4) Very devout
8. How many dates have you had in the past four weeks? (Include "dates" with your boyfriend or girlfriend)	(1) None
	(2) One to two
	(3) Three to four
	(4) Five to six
	(5) Seven to eight
	(6) Nine to ten
	(7) Eleven to twelve
	(8) Thirteen to fourteen
	(9) Fifteen or more
9. How old were you the first time you had sexual intercourse?	(1) Never had sexual intercourse
	(2) 14 years old or younger
	(3) 15
	(4) 16
	(5) 17
	(6) 18
	(7) 19
	(8) 20
	(9) 21 years or older

IF YOU HAVE NEVER HAD SEXUAL INTERCOURSE PLEASE SKIP TO QUESTION 18

10. Since coming to college this past fall how many times on the average have you had sexual intercourse?	(1) None
	(2) Less than once a month
	(3) About once a month
	(4) Twice a month
	(5) Three times a month
	(6) Four times a month
	(7) Five times a month
	(8) Six times a month
	(9) Seven or more times a month

11. How many times have you had intercourse in the past four weeks?	(1) (2) (3) (4) (5) (6) (7) (8) (9)	None Once Twice Three times Four times Five times Six times Seven times Eight or more times
12. When was the last time you had sexual intercourse?	(1) (2) (3) (4) (5) (6) (7) (8)	Within the last week Within the last two weeks Within the last three weeks Within the last four weeks Within the last five weeks Within the last six weeks Within the last seven weeks More than seven weeks ago
13. How would you classify your partner at the time of your last intercourse?	(1) (2) (3) (4) (5) (6)	A pickup or casual date Someone you dated often, but to whom you were not emotion-ally attached Someone to 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 MALES ONLY: A prostitute
14. How long have you been dating the person with whom you last had intercourse?	(1) (2) (3) (4) (5) (6) (7) (8)	Less than one month One to two months Three to four months Five to six months Seven to eight months Nine to ten months Eleven to twelve months More than twelve months
15. What did you or your partner use to prevent pregnancy the last time you had intercourse?	(1) (2) (3) (4) (5) (6) (7) (8) (9)	Nothing Condom (rubber) Withdrawal Diaphragm and/or spermicidal foam Birth control pills Rhythm method Intra-uterine device (IUD) Douche Do not know
16. Regarding the last time you had intercourse which statement most applies to you?	(1) (2)	I did not expect intercourse to occur when it did I did expect intercourse to occur when it did
17. When having intercourse, how often do you or your partner use contraception? (Do NOT include the method of withdrawal)	(1) (2) (3) (4) (5)	Never Not much of the time Some of the time Most of the time All the time
18. Of the five specific friends of your own sex and age you know best how many have had premarital intercourse during the past year? (If in doubt about a person assume they did not have premarital intercourse)	(1) (2) (3) (4) (5) (6)	None One Two Three Four Five
19. Of the five specific friends of your own sex and age you know best who are currently engaging in premarital intercourse how many do you think always use birth control?	(1) (2) (3) (4) (5) (6)	None One Two Three Four Five

How do you think the following people would feel about you if you had sexual intercourse with a casual date? VMD=very much disapprove; MD=moderately disapprove; SD= slightly disapprove; N=neutral; SA=slightly approve; MA=moderately approve; VMA=very much approve (Skip number 21 and 22 if they do not apply to you)

	VMD	MD	SD	N	SA	MA	VMA
20. Close personal friends	(1)	(2)	(3)	(4)	(5)	(6)	(7)
21. Sorority sisters or fraternity brothers	(1)	(2)	(3)	(4)	(5)	(6)	(7)
22. Members of your church	(1)	(2)	(3)	(4)	(5)	(6)	(7)
23. Mother	(1)	(2)	(3)	(4)	(5)	(6)	(7)
24. Father	(1)	(2)	(3)	(4)	(5)	(6)	(7)

How do you think the following people would feel about you if you had sexual intercourse with someone you loved? (Skip number 26 and 27 if they do not apply to you)

	VMD	MD	SD	N	SA	MA	VMA
25. Close personal friends	(1)	(2)	(3)	(4)	(5)	(6)	(7)
26. Sorority sisters or fraternity brothers	(1)	(2)	(3)	(4)	(5)	(6)	(7)
27. Members of your church	(1)	(2)	(3)	(4)	(5)	(6)	(7)
28. Mother	(1)	(2)	(3)	(4)	(5)	(6)	(7)
29. Father	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Please answer the following six questions by marking (1) if you definitely disagree with the statement; (2) if you slightly disagree; (3) if you slightly agree; (4) if you definitely agree.

	DD	SD	SA	DA
30. Everyone should believe in and practice some religion	(1)	(2)	(3)	(4)
31. The best way to foster the moral development of civilization is through organizing religion	(1)	(2)	(3)	(4)
32. There should be stricter observance of the Sabbath, the religious day of rest.	(1)	(2)	(3)	(4)
33. The world moves in an evolutionary process of unfolding rather than through divine guidance	(1)	(2)	(3)	(4)
34. There is an almighty God who watches over us	(1)	(2)	(3)	(4)
35. There is a life after death	(1)	(2)	(3)	(4)

Mosher F-C Inventory
Form M

This inventory consists of a number of pairs of statements or opinions which have been given by college men in response to the "Mosher Incomplete Sentences Test." These men were asked to complete phrases such as "When I tell a lie..." and "To kill in war..." to make a sentence which expressed their real feelings about the stem. This inventory consists of the stems to which they responded and a pair of their responses which are lettered A and B.

You are to read the stem and the pair of completions and decide which you most agree with or which is most characteristic of you. Your choice, in each instance, should be in terms of what you believe, how you feel, or how you would react, and not in terms of how you think you should believe, feel, or respond. This is not a test. There are no right of wrong answers. Your choices should be a description of your own personal beliefs, feelings, or reactions.

In some instances you may discover you believe both completions or neither completion to be characteristic of you. In such cases select the one you more strongly believe to be the case as far as you are concerned. Be sure to find an answer for every choice. Do not omit an item even though it is very difficult for you to decide, just select the more characteristic member of the pair. Encircle the letter, A or B, which you most agree with.
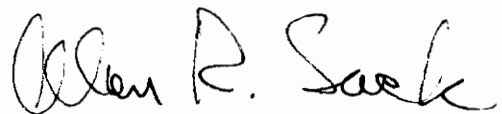
1. If in the future I committed adultery...
   A. I won't feel bad about it.
   B. it would be sinful.

2. "Dirty" jokes in mixed company...
   A. are common in our town.
   B. should be avoided.

3. As a child, sex play...
   A. never entered my mind.
   B. is quite widespread.

4. Sex relations before marriage...
   A. ruin many a happy couple.
   B. are good in my opinion.

5. If in the future I committed adultery...
   A. I wouldn't tell anyone.
   B. I would probably feel bad about it.

6. When I have sexual desires...
   A. I usually try to curb them.
   B. I generally satisfy them.

7. Unusual sex practices...
   A. might be interesting.
   B. don't interest me.

8. Prostitution...
   A. is a must.
   B. breeds only evil.

9. As a child, sex play...
   A. is not good for mental and emotional well being.
   B. is natural and innocent.

10. As a child, sex play...
    A. was a big taboo and I was deathly afraid of it.
    B. was common without guilt feelings.

11. "Dirty" jokes in mixed company...
    A. are not proper.
    B. are exciting and amusing.

12. Unusual sex practices...
    A. are awful and unthinkable.
    B. are not so unusual to me.

13. When I have sex dreams...
    A. I cannot remember them in the morning.
    B. I wake up happy.

14. "Dirty" jokes in mixed company...
    A. are lots of fun.
    B. are coarse to say the least.

15. Petting...
    A. is something that should be controlled.
    B. is a form of education.

16. Unusual sex practices...
    A. are O.K. as long as they're heterosexual.
    B. usually aren't pleasurable because you have preconceived feelings
        about their being wrong.

17. Sex relations before marriage...
    A. are practiced too much to be wrong.
    B. in my opinion, should not be practiced.

18. As a child, sex play...
    A. is dangerous.
    B. is not harmful but does create sexual pleasure.

19. As a child, sex play...
    A. was indulged in.
    B. is immature and ridiculous.

20. When I have sexual desires...
    A. they are quite strong.
    B. I attempt to repress them.

21. Sex relations before marriage...
    A. help people to adjust.
    B. should not be recommended.

22. Masturbation...
    A. is a habit that should be controlled.
    B. is very common.

23. If I committed a homosexual act...
    A. it would be my business.
    B. it would show weakness in me.

24. Prostitution...
    A. is a sign of moral decay in society.
    B. is acceptable and needed by some people.

25. Sex relations before marriage...
    A. are O.K. if both partners are in agreement.
    B. are dangerous.

26. Masturbation...
    A. is all right.
    B. should not be practiced.

27. Sex...
    A. is a beautiful gift of God not to be cheapened.
    B. is good and enjoyable.

28. Prostitution...
    A. should be legalized.
    B. cannot really afford enjoyment.

VITA

Alan Richard Sack was born on September 1, 1950, in Hartford, Connecticut. He graduated from Weaver High School, Hartford, Connecticut in 1968. He attended The University of Connecticut at Storrs and completed the requirements for a B.S. degree in Child Development and Family Relations in September, 1972.

Mr. Sack completed the requirements for a M.S. degree in Management, Housing and Family Development in August, 1974, at Virginia Polytechnic Institute and State University. His concentration was in Family Development. In August, 1978, he fulfilled the requirements for a Ph.D. degree in Family Development at Virginia Polytechnic Institute and State University. During his graduate program he held a graduate teaching assistantship for four years and was employed as a part-time instructor for one year. In August, 1978, he accepted a position as an assistant professor in Family Resources at West Virginia University.

DEVELOPMENT OF A THEORY OF CONTRACEPTIVE PRACTICES

AMONG SINGLE MALE AND FEMALE COLLEGE STUDENTS

by

Alan Richard Sack

(ABSTRACT)

The purpose of this study was to develop causal models relative
to the premarital use of contraception among male and female college
students. Eleven predictor variables were incorporated in separate
male and female models. Self-administered questionnaires were mailed
to a random sample of dormitory residents at a large southeastern
university. A path analysis procedure was performed on the data from
those students who were nonvirgins.

The male model accounted for 20 percent of the total variance.
The most influential predictor variable was the frequency in which
males engaged in coitus. The more frequently they engaged in coitus,
the more likely they or their partner used a reliable contraceptive
at their latest coitus. Males who had expected coitus to occur before
it did were more likely to have used a reliable contraceptive than
males who did not expect coitus to occur. This was the second most
influential variable in the male model.

The female model accounted for 15 percent of the total variance.
The most influential predictor variable was the degree of emotional
attachment the females had toward their sex partner. The greater the
degree of emotional attachment, the greater the likelihood they or
their partner used a reliable contraceptive at their latest coital

experience. Females were also more likely to have used reliable contra-
ception at their most recent sexual intercourse the greater the number
of close friends who were thought to use contraception. This was the
second most influential variable in the model.

Methodological and theoretical implications were discussed and
recommendations for future research were made.