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THE RELATIONSHIPS OF SELECTED VARIABLES TO THE USE/NONUSE OF CONTRACEPTIVES AMONG UNDERGRADUATE COLLEGE AND UNIVERSITY STUDENTS

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

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DEDICATION

TO THE BELOVED MEMORY OF

My Father, W.L. Slaughter

and

My Maternal Grandfather, George A. Kelley

who knew

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ABSTRACT

The purpose of this research was to assess the role of race, sex, locus of control personality variables, and socioeconomic status on the use/nonuse of contraceptives among sexually active undergraduate college and university students.

Three questionnaires, 1) Locus of Control Scale, 2) Socioeconomic Questionnaire, and 3) Contraceptive Utilization Questionnaire, were administered to 344 undergraduate students during the Spring quarter, 1982. Sixty-four percent of the students surveyed indicated sexual activity. Sexually inactive students and others not meeting the research requirements were eliminated from the study. Consequently, 196 students were analyzed for this study. In the study group, 19 percent were surveyed from Knoxville College, Knoxville, and 81 percent were from The University of Tennessee, Knoxville. Twenty-four percent of the students were black and 76 percent were white. Forty-seven percent of study population were male while 53 percent were female students.

Analysis of the association between the variables was completed by the use of Yule's Q statistic. The Q coefficient was used to determine the Proportional-Reduction-in Error (PRE).

Based on the findings of the analyzed data, the following major conclusions were derived:

1. Race is not a factor in contraceptive use/nonuse by sexually active college and university undergraduate students.

2. The sex of the subject is a factor in contraceptive use/nonuse by sexually active college and university undergraduate students. Overall, male students are nonusers of contraceptives.

3. Locus of control internal-external personality variables are not factors in contraceptive use/nonuse by sexually active college and university undergraduate students.

4. Socioeconomic status is not a factor in contraceptive use/nonuse by sexually active college and university undergraduate students. However, when groups were studied separately, socioeconomic status was a factor in contraceptive nonuse among white low socioeconomic status students.

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CHAPTER I

INTRODUCTION

> If this shift toward earlier experience with sexuality is in fact occurring, then we might entertain thoughts of profound social changes waiting in the wings (24).
>
> --Gagnon and Simon

Research and casual observation have shown that sexual behavior on college campuses has changed over the last two decades (33, 39). In fact, there appears to be a "sexual revolution" on many college and university campuses. Yet college students are not only very naive about their sexuality, but are alarmingly vulnerable to unwanted pregnancies (33).

Of the health problems confronting this nation, the epidemic of unwanted and premarital pregnancies has significant social and health related consequences. The magnitude of this problem has become a major priority in terms of the health, socioeconomic, and other demographic implications for these youths, their offsprings, and the nation as a whole. In addition, early childbearing has increased in other countries. The United States' adolescent fertility rate has, however, remained higher than virtually all other industrialized societies (32).

Premarital pregnancies in young females deserve special attention for the factors influencing such a social/medical problem are multiple and often complex.

A majority of these teenagers and young adults must cope with many physical, psychological, and social changes. Change is basic to individuals in pre and early adulthood, and they are constantly experimenting with ways in developing new identities. In acting and rehearsing these roles, they attempt to develop a self-concept of being a mature adult. Sometimes and increasingly, pregnancies occur in their role-playing, and introduce a profound set of adult values on the psychologically and/or physically immature persons (42).

Data indicate that between 1966 and 1976 bith rates soared among females in the 14-19 year old population. According to a 1978 government study, there were over one-quarter million births in 1973 to females under 18 years old (35). Almost one-half of these births were to unmarried females. Present statistics suggest that nearly one million women (15 to 19 years old) will become pregnant every year. Specifically, these data indicate that 1 out of every 10 adolescent females will become pregnant (19).

Beginning in the early 1970's, the government and private sectors, prompted by the increasing young female birth rate statistics, sought avenues to curtail or eliminate the problem of premarital and teenage pregnancies. The actions were also caused by the seriousness of the health, social, economic, and political immensities of the problem. Accordingly, many projects and programs were

instituted to allow the at-risk population to become aware of the pregnancy problem among the young and its many ramifications. Imformation was disseminated and many communities vigorously attempted to seek solutions toward the elimination of this problem. Consequently, Public Law 95-625 was passed in 1978, which provided money for comprehensive community services to assist the young sexually active and/or pregnant individual via community health clinics and family planning agencies.

Because of this public concern and the establishment of abortion clinics, the young female birth rate dropped. Specifically, among females 15 to 17 years old, 38.8 percent or 135,801 of the conceptions ended in abortions in 1977 (4). Consequently, the use of contraceptives did not substantially influence the decrease in adolescent birth rate.

Oswalt's 1974 data estimated that at least 5-10 percent of all college female students would get pregnant each year (37). It was also revealed that 16 percent of all sexually active college female students had at least one abortion in 1979 (39). The collegiate pregnancy and abortion data indicate that students are not the effective contraceptors one might expect.

While birth rates among young females under 21 years old have decreased, the problem of premarital and unwanted pregnancies remain very visible. This country is faced

with a continuing problem that will fluctuate with the amount of sexual activity and the utilization of contraception within this target population.

Because changes in health behavior as well as changes in self-concept are often the goals of health/sex education programs, the locus of control construct may be a valuable tool to aid in realizing a major reduction in high school and collegiate pregnancies. The locus of control construct measure is effective in assessing an individual's belief regarding internal and external reinforcements in terms of their health status and practices (41).

Establishing an association between contraceptive use, locus of control personality variables and other factors (sex, race, and socioeconomic level) would provide relevant information for counselors, parents, health educators, and researchers. This information would be of particular value in the development and implementation of educational strategies for preventive health/sex education programs.

I. PURPOSE OF THE STUDY

The purpose of this study was to assess the role of external and internal locus of control personality variables, sex, race, and socioeconomic status, on the use/non-use of contraceptives among sexually active undergraduate college and university students.

II. STATEMENT OF THE PROBLEM

The problem of this research was to determine if an association existed between selected variables and the use/nonuse of contraceptives among sexually active young adults. The following research questions were addressed:

1. Is there an association between contraceptive use/nonuse and race?

2. Is there an association between contraceptive use/nonuse and sex?

3. Is there an association between contraceptive use/nonuse and internal-external locus of control personality variables?

4. Is there an association between contraceptive use/nonuse and socioeconomic status?

III. RESEARCH HYPOTHESES

1. There is an association between contraceptive use/nonuse and race.

2. There is an association between contraceptive use/nonuse and sex.

3. There is an association between contraceptive use/nonuse and internal-external locus of control personality variables.

4. There is an association between contraceptive use/nonuse and socioeconomic status.

IV. BASIC ASSUMPTION

The basic assumption was that the study participants were cooperative and responded candidly to each item.

V. DELIMITATIONS

This study was bound by the following delimiting characteristics:

1. The research participants were selected from undergraduate students enrolled in health courses at The University of Tennessee, Knoxville, and Knoxville College, Knoxville, during the Spring quarter, 1982.

2. Only individuals who indicated that they were sexually active, 30 years old or younger, and volunteered to participate were used as subjects in this research.

VI. NEED FOR THE STUDY

There is a need for a better understanding of the factors that effect contraceptive usage among sexually active young adults and teenagers. To date, much data have been accumulated regarding female attitudes, beliefs, and knowledge in terms of contraceptive usage; however, only a few recent studies involve the adolescent and collegiate male and their pattern of contraceptive utilization (13, 10, 6, 11). This may be significant since some female sexual behavior is often acquiescent to male initiation (13).

Similarly, not much empirical data have been developed on socioeconomic status and contraceptive use/nonuse. Most of the research in this area was conducted on nonwhites, specifically black females. Consequently, the terms low socioeconomic and blacks are frequently used synonymously in research studies. They may, in fact, be appropriate since the majority of blacks are low socioeconomic status when compared to the majority population.

Mounting data indicate that sexual activity is becoming a part of adolescent development in more than three-fourths of the youths in the United States (13). Meanwhile, contraceptive use and education have been usually too late or too little to affect young female pregnancy and abortion statistics (39).

This study will determine the association between sex, race, socioeconomic status, and internal-external personality variables on the use/nonuse of contraceptives. A better understanding of the effects of these variables on contraceptors will provide an insight into the development, design, and implementation of preventive health and sex education programs. In addition, this research may be important in early determination regarding teenage and collegiate compliance with contraceptive instructions.

VII. DEFINITION OF TERMS

1. Contraception--the prevention of pregnancy by the use of an agent or device (contraceptive) designed to diminish the likelihood or the prevention of conception.

2. Locus of Control--the perception of an event by an individual to be a consequence of his or her ability or purely chance.

3. External Control--the perception of positive and/or negative events unrelated to one's own behavior in certain situations and beyond personal control.

4. Internal Control--the perception of positive and/or negative events as being a consequence of one's own actions and under personal control.

5. Rotter's Internal-External Locus of Control Scale--a personality construct designed to indicate the degree in which one accepts personality responsibility for his/her behavior and life experiences.

6. Sexual Activity--synonymous with "practices" to indicate overt action or intercourse at least in preceeding 12 month period.

7. Undergraduate Student--individual that is 30 years old or younger, enrolled in classes for undergraduate credit at The University of Tennessee or Knoxville College.

CHAPTER II

REVIEW OF RELATED LITERATURE

I. INTRODUCTION

This chapter reviews the literature that is relevant to this investigation. The variables of sex, race, and socioeconomic status were discussed throughout the literature review. The literature reviewed included the following: 1) Teenage and collegiate sexual behavior studies, 2) teenage and collegiate contraceptive behavior studies, 3) locus of control personality variables studies, and 4) related methodological studies.

II. TEENAGE AND COLLEGIATE SEXUAL BEHAVIOR STUDIES

Historically, unwanted pregnancies, illegitimate childbirths, and forced marriages have been common in our American society. Prior to 1960 societal institutions (home, school, and church) reinforced each other in their admonition against premarital sex and concomitant denial of sexual knowledge (15). However, some research indicate that sexual activity among individuals under 20 years old has substantially risen in recent years (19, 32, 35).

Data gathered by Moore in 1980 revealed that approximately one million American females 19 years old and younger would become pregnant that year, one-third would

abort the pregnancy; and two-thirds would carry it to the term (32).

The Allan Guttmacher Institute reported that 12 million of the 29 million people between the ages of 13 and 19 years old have had sexual intercourse (19). Likewise, a 1976 survey reported that:

> 1. one-fourth of the births in the United States are to women under the age of 20 years old,
> 2. nine out of ten of these women will keep their babies,
> 3. out-of-wedlock births are up 75 percent among women under the age of 20 years old,
> 4. two-thirds of these pregnancies are unintended, and,
> 5. four million women under the age of 20 years old are at risk of having an unintended pregnancy (18).

Investigating collegiate sexual behavior in 1970, Kaats and Davis, pointed out (after a review of all published and several unpublished studies on college students' sexual behavior) that:

> the weight of the data suggest a marked change in the number of college women who experience premarital coitus (24).

Oswalt conducted a survey to assess female college students' sexual behavior and reported that 65 percent of the female students indicated that they were nonvirgins. In addition, he concluded that:

> Thirty percent of the sexually experienced subjects had their first coitus at age 17 or younger. If one considers age 18 as the age one enters college, the data indicate that 30 percent of first coital experiences occur before a subject enters college. Another 31 percent lose their virginity at age 18, 25 percent at age 19, 12 percent at age 20, and 2 percent at age 21 (37).

Hansson reported that the majority of the college undergraduate participants (ages 18-19 years old) in his study were sexually active before the age of 18 years old (21).

Dignan in a 1976 study of college students indicated that the average age of first sexual intercourse was 16 years old. Forty-six percent of the group reported the frequency of sexual intercourse was two to three times per week (7).

Beard's data revealed that 61 percent of the female students involved in that Berkeley study indicated that they were nonvirgins (3). Another study at the University of Texas in 1975 indicated that 57 percent of the study population (males and females) had had sexual intercourse within a week's span (46).

These data reveal a marked contrast to the statistics collected by earlier researchers of collegiate sexual behavior. Kinsey's data in 1953 indicated that 20 percent of all 19-20 year old female college students had engaged in premarital coitus (25).

Kaats and Davis conducted studies in the early 1970's and reported that their findings:

> clearly established that premarital coital rate for (collegiate female students) fell in the 41-44 percent range. But the premarital coital rate for college men of the same academic class hit at the 60 percent figure that has been commonplace since World War I (24).

Findings regarding pregnancies in a collegiate

female population indicated that in 1974 "9 percent of the sexually experienced coeds have been pregnant (7 percent had abortions and 2 percent miscarried)" (37).

Murphy et al. reported a 22 percent incident rate of unwanted pregnancies following a study of the sexual behavior of single undergraduate female college students at Rutgers University, New Jersey (33). Likewise, Teenage Pregnancy: The Problem Hasn't Gone Away, published by the Guttmacher Institute, indicated a 21 percent pregnancy rate for young women ages 15-17 years old (19). In addition, Murphy et al. reported that most of the pregnancies in their studies were terminated via abortions (33).

While premarital sexual activity among the young has been traditionally portrayed as affecting the minority and poor, a large body of literature (18, 19, 44) indicates that teenagers from higher incomes and nonminority groups are beginning sexual intercourse at earlier ages. Premarital sexual activity and unwanted pregnancy are not the special problems of any one economic, ethnic, or social group, but affect young people from all regions and from families of all socioeconomic levels, racial groups, and religious denomination (51, 52).

Surveys of the past decade reported that among those individuals under 20 years old who experienced sexual activity, the proportion of blacks who experienced a premarital first pregnancy and subsequent birth was twice

that of whites. Currently, there is evidence of a change in the sexual patterns among the white young female. According to Zelnik and Kanter, "white teenage overall level of coital experience is lower; their rate of increase is faster than the black teenager" (51).

Furstenberg (14) suggested that females from low-income families are more likely to become teenage single mothers because of the many social inequities they and their parents have experienced in their development. Research data fail to show that white females below 21 years old from low socioeconomic level families are more likely than other whites to have premarital coitus. The research does indicate an association between low socio-economic status and premarital sexual activity among black females under the age of 18 years old (53).

Accumulated information has demonstrated the harmful medical and socioeconomic consequences of young childbearing, regardless of the mother's marital status or racial heritage. An investigation of the health risk of teenager pregnancies indicate that young females are sometimes biologically too immature for effective childbearing (42). Prematurity rates are higher and low birth weight is twice as high among females under 18 years old (22, 42). There is a twofold increase risk in babies born to teenagers with neurological defects (47). Mothers under the age of 20 years old are 1.3 times more likely to suffer

from anemia or toxemia as a result of pregnancy (44). In lieu of the theory that the youth of the mother may cause the health problems mentioned, Baldwin and Cain have suggested that indeed these perinatal morbidity and mortality rates may be a "function of the environment in which adolescent childbearing takes place rather than a function of age per se" (21).

According to Furstenberg, the adolescent mother consistently experiences greater difficulty in realizing her life plans, when compared to her classmates who did not become pregnant premaritally. Marital instability, school disruption, economic problems, and difficulty in family size regulation and childbearing are some of the complications brought on by the premature, unscheduled childbearing (14).

Premarital and/or unwanted pregnancies among the young are often the beginning of what is referred to as the "syndrome of failure," for the mother and her child (26). There is a failure of normal growth and development of both mother and child. Oppel reported that the:

> youth of mothers is a contributing factor to less than adequate nurture of children and to deficits in their physical, social, and/or psychological development (36).

There has been a failure of teenage mothers to remain in school and attain adequate training for a vocation. Often there is inadequate mothering. The child is unwanted and rejected. Children of teenagers are likely to

become adolescent parents and they appear likely to develop poor cognitive development and to have more social and behavioral problems than other children (2). In addition, Gabrielson et al. reported that there is an apparent risk of attempted or threatened suicide among women who were pregnant before the age of 18 (15).

III. TEENAGE AND COLLEGIATE CONTRACEPTIVE BEHAVIOR STUDIES

Prior to 1974, births to females under 19 years old were rising. Since that period, this trend has decreased and it appears to be related to induced abortions and the use of contraceptives among the target population.

Zelnik and Kanter studies have showed that the availability of contraceptives have increased and the use by young individuals has indeed prevented a large number of unwanted pregnancies and births. They estimate that 680,000 additional nonmarital pregnancies per year would occur if it were not for the use of contraceptives by teenagers. Furthermore, these authors reported that:

> Contraceptive practice among unmarried teenage women improved significantly between 1971 and 1976. The proportions of sexually active unmarried women who always used contraception and who used it at the time of last intercourse increased. This improvement was moderated to some extent by a concurrent though small growth in the proportion who never used contraception (15).

Much of the literature on contraception utilization by the teenage and young adult published by Family Planning

Perspective (19, 51, 52, 53) during the 1970's indicated up to a 12 month delay between the onset of sexual activity and contraceptive utilization. In one of these studies, Zabin et al. revealed that one-half of all first premarital teenage pregnancies occurred in the first six months of sexual activity. In addition, they pointed out that young persons are being reached too late, when despite the increase in clinic (contraception) services and utilization of such, more than one million females under 20 years old continue to become pregnant.

Professional literature indicates that young women whose parents have more than a high school education are more likely to use contraception consistently or to choose to have an abortion, if they are premaritally pregnant (53). This suggests that coming from a nonpoverty background decreases the likelihood of premarital birth. In contrast, black women under the age of 20 years old were half as likely to use contraceptives consistently and only one-third as likely to have an abortion (53). Ladner wrote that premarital births are considered undesirable in the low-income black community, but is usually accepted as an unfortunate but often inevitable occurrence (28). The life situation and resulting norms of low income of many blacks probably play a significant role in the above behavior.

While it appears that among middle class white

social groups, premarital sexual activity among the young is undesirable, little research is available on the subject.

In a 1981 study on contraceptive use in a collegiate population, Rindskopf stated that:

> Today's college students live in an era characterized by unprecedented sexual freedom and widespread acceptance of premarital sexual activity. They have relatively easy access to contraceptive information and to highly effective contraceptive techniques. Andy they are of a developmental age which is reasonably enlightened and responsible. The rule of plausibility might suggest that, given these conditions, college students would be effective contraceptive users. Paradoxically data indicate that a significant proportion of students are poor contraceptors, using either unreliable methods or no methods at all. In addition pregnancy and abortion rates among college women appear to be startlingly high (39).

According to Zelnik and Kanter, contraceptive use increased from 18 percent in 1971 to 30 percent in 1976 among individuals under 20 years old. Paradoxically, these researchers also reported that the proportion of sexually active young females who "never" used contraception was greater in 1976 than in 1971 (51).

Dignan's study involving contraception behavior among college students revealed that at the last intercourse, 66.6 percent of the men and 37.5 percent of the women reported using no contraception (7). Additional data on contraception behavior of unmarried college students indicated that 39 percent of the subjects were protected and there was the possibility of pregnancy in 61 percent of the subjects. These data all indicated that 61 percent did

not adequately protect themselves on all occasions of sexual intercourse (37).

In the Rutgers University investigation conducted by Murphy et al. it was found that "only 23 percent of the sexually active single females and their partners always used an effective method" of contraception. Furthermore, the study reported that:

> One of the most surprising results of the study was the poor effort of the Rutgers college women to protect themselves from unwanted pregnancies. The effective methods women can use are very low on their list of methods actually used. It appears that unless her partner used a condom, women were unprepared and unprotected most of the time (33).

Rindskopf concluded a contraceptive behavior of college students investigation by indicating that albeit, sexual activity is generally condoned and contraceptive technology is effective,

> data indicate that these students are poor contraceptive users, and that pregnancy and abortion rates among college students are surprisingly high. Since these social conditions should result in adequate contraceptive usage, other less obvious and overtly less rational factors must be influencing the behavior of this population (39).

Hansson reported that male and female college students believed that the woman rather than the male should assume the final responsibility for providing contraceptives (21). Research studies results reveal that males are not effective contraceptive users, which may indicate that the male college student may not be concerned enough about the possibility of pregnancy to use contraceptives.

Freeman reported that black males under 19 years old had less information about contraceptives and fewer attitudes that supported contraceptive use than females in the same age group.

> Males were likely to believe that females did have correct information about contraception, an attitude that lessened their need to be involved . . . Males perceived contraception to be for females and only indirectly relate it to themselves (13).

Scales concluded that over 80 percent of sexually active males did not personally use contraceptives and were not sure if their partners did. However, most females said that they would not depend on the male taking the responsibility for providing the contraceptive (43).

Further, according to Scales, conventional double standards:

> encourage the male to be aggressor and pursuer of sexual intercourse with the female who cannot plan to be protected; it is the female who literally bears the burden if pregnancy should occur (43).

According to Johnson and Staples, the male sexually active student is allowed to escape contraceptive responsibility because of a sexist assumption:

> although it is the boy's fault for getting the girl pregnant, she failed to exercise the negative control expected of females (23).

Despite the lack of male involvement as a contraceptor, at least one-half of the contraceptives used by the collegiate population are methods employed by males (condoms and withdrawal) (43).

Accordingly, there are regions in this country

where pregnancies among young females are continuing to accelerate while health care systems and educational institutions are desperately addressing the problem. According to some, this suggests a lack of prevention planning by sexually active youth (22). There are a variety of organizations that have attempted to deliver effective services to a yet unreached young population. An enigmatical question remains: "Why don't sexually active young people use contraception?" Sheldon wrote, the reasons for the low utilization of contraceptives by younger individuals are varied and complex. All of the asserted reasons--ignorance, misinformation, lack of motivation, restrictive societal and physical attitudes, legal constraints, financial examination, and lack of futuristic thinking are all present (44). In addition, data have been collected that suggest demographic and psychological variables may influence contraceptive use among teenage and collegiate student populations.

IV. LOCUS OF CONTROL STUDIES

Realizing that individuals can do much to attain and maintain their good health and health practices, health educators have searched for some means to lessen the gap between what is known to be good personal health behavior and what is practiced. People do not behave in ways they know that they should for healthier lives (27). This

contradictory type of health behavior may be explained by an individual's belief about the influence his/her behaviors have on his/her health.

One's belief about the relationship between one's behavior and its outcome fall under the domain of locus of control, a construct derived from Rotter's social learning theory (41). According to this theory, an individual develops both a general and specific expectancy about determinants of the reinforcements he or she receives. Through a learning process, individuals come to expect either that certain outcomes are a result of their actions or that they are a result of forces external to them. The general expectancy that reinforcement is either under the control of the individual (termed internal) or outside forces such as fate, luck, or chance or powerful others (termed externals) is referred to an internal-external locus of control. Specifically, Rotter defined the concept of internal versus external control of reinforcement as:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control (41).

Thus the knowledge of locus of control expectancies

together with knowledge about values should, theoretically, contribute to the prediction of health behaviors. There is evidence suggesting that internals are more likely to take preventive measures to keep themselves healthy and free of disease or the possibility of accident (49). Reynolds wrote that sex and race were found not to be related to I-E Scale score in 116 southern black college students; however, a relationship was found between a group of sixth and eighth grade black and white students. Black children were determined to be more external, while the white children were more internal (38).

Forouzesh wrote that among blacks and other minorities access to opportunity may influence the reason these populations have been reported more external than the white population. He stated:

> it may be concluded that perceived control is positively associated with access to opportunity. Those who are able, through position and group membership, to attain more readily the valued outcomes that allow a person to feel personal satisfaction are more likely to hold internal control expectancies (12).

Research indicates that there is a relationship between the personality variables of internal versus external locus of control and the use of contraceptives among single female college students. McDonald found that individuals with an internal locus of control were more likely to practice birth control. In addition, he cautioned that these findings should not be generalized and advocated controlled replication of the finding pertaining to the

single college female subjects (38). Dignan's studies and Lundy's data indicated that the sexually active female contraceptive users were significantly more internalizing than the sexually active noncontraceptive users (7, 29). The implications of these findings suggest that personality variables are significantly related to the dynamics of contraceptive use and indicate the need for further study in this area. Lundy concluded, "it would appear that the presence of certain personality traits are associated with choosing to use or not to use contraceptives" (29).

Recent research has not been successful in confirming the previous findings of locus of control and contraceptive use. These studies were not conducted on a collegiate population. The sample groups differed in age, socioeconomic status, and education and the locus of control variables were not related to contraceptive use (47).

With regard to the high incidence of collegiate pregnancies, a major implication may be drawn from the concept of locus of control. The potential for preventive health education programs tailored to individual's locus of control belief is very high.

Internal oriented health (sex education) programs should provide some choice of birth control, more involvement of college students in making health choices, and strong emphasis on the individual's responsibility in his/

her health. In contrast, external oriented programs might be designed to move students who believe in chance to a belief that their health conditions (pregnancy) can be controlled, even if it is dependent on powerful others. In addition, externally oriented sex educated programs might also stress reliance on social support systems (family planning agencies) and the importance of the youth's compliance with contraceptive instructions (29).

V. RELATED METHODOLOGICAL STUDIES

There were several studies present in the literature that were related to this research in subject matter and procedure.

MacDonald used the Rotter's Internal-External locus of control construct to examine the practice of birth control among 212 female undergraduate college students at the University of West Virginia. Sixty-two percent of the internal students reported that they had practiced birth control as opposed to 37 percent of the externals (30).

Dignan studied locus of control and choice of contraceptives among college students at a university in the Southeast. The subjects (males and females) were randomly selected from undergraduate health education courses. The data revealed that a group of females were more internal on the I-E Scale and favored birth control

pills as a highly desirable contraceptive method (7).

Hansson studied contraceptive knowledge on sexual involvement, personal responsibility, and prediction of options in the event of unwanted pregnancy data collected from undergraduate college students during two semesters. It was found that more knowledgeable males and females believed that women rather than men should assume final responsibility for contraception (21).

Beard used selected factors to investigate the use/nonuse of contraception among a sample of 202 single college women. Demographic variables examined were: age, religion, socioeconomic status (SES), and color. The findings indicated that:

> 1. younger girls were most inexperienced as effective contraceptors,
> 2. pursuers of some organized religion tended to practice abstinence,
> 3. girls of low SES, mostly black did not practice contraception,
> 4. differences existed significantly between whites and orientals, but not between whites and blacks. More orientals practiced abstinence, while whites were at medium risk of pregnancy and those at high risk showed a slight tendency to be black (3).

Lundy studied locus and control and contraceptive use among female undergraduates enrolled in psychology courses in five Midwest colleges. The findings supported the hypothesis that sexually active contraceptive-using unmarried female college students were significantly more internalizing than the sexually active noncontraceptive users (29).

VI. SUMMARY

The literature reviewed in this chapter focused on several implications worthy of special consideration in reaching final conclusions based on the research findings for this study:

1. In the teenage and collegiate populations, poor and undereducated individuals appear to be linked to early and premarital sexual activity.

2. Teenagers and collegiate students appear to be exceptionally poor contraceptors in view of the availability of contraceptive services and methods.

3. Male teenagers and college students appear to be contraceptive nonusers at a higher percentage than females of the same population.

4. Black teenagers appear to be poorer contraceptors than white teenagers.

5. Collegiate premarital sexual activity appears to have become less of a negative social occurrence than it has been in the past few decades.

6. The locus of control internal-external personality variables concept and scale appears to have inconsistent results in terms of serving as predictors of human sexual behavior.

This chapter has provided productive information and an insight into various interpretations of associations of contraceptive use/nonuse and the selected variables.

Finally, the review of related methodological studies has provided a means of evaluating the design and procedures of this research.

CHAPTER III

METHODOLOGY

I. OVERVIEW

The primary purpose of this investigation was to assess the role of selected variables on the utilization of contraceptives among sexually active college and university males and females.

The following were addressed in this study: 1) to determine if an association existed between contraceptive use/nonuse and race; 2) to determine if an association existed between contraceptive use/nonuse and sex; 3) to determine if an association existed between contraceptive use/nonuse and locus of control personality variables; and 4) to determine if an association existed between contraceptive use/nonuse and socioeconomic status.

II. INSTRUMENTATION

The instruments used in this investigation were:

1. The Internal-External Locus of Control Scale.
2. A Socioeconomic Questionnaire, and
3. A Contraception Utilization Questionnaire.

The Internal-External Locus of Control Scale

The Rotter's standard version of Internal-External Locus of Control Scale was used for this study (see

Appendix A). Locus of control is not a characteristic to be realized within an individual. It is a construct, a working tool in social learning theory, which allows for an interpretation of remarks made by people and to elicit their expressions of belief. Rotter's Locus of Control Scale is a questionnaire for rough approximation of what is believed to be a person's expectancies about control. The Locus of Control Scale questionnaire consists of 29 forced-choice items. Each item consists of a pair of alternatives (a) and (b) lettered choices. Of the 29 items, six were filler items and were intended to make the purpose of the questionnaire less obvious (41).

The reliability and validity of the Rotter's Locus of Control Scale has been reported in many studies (38). Test-retest reliability for a one-month period was reported to be +.69. Rotter found that the Locus of Control Scale correlates satisfactorily with other methods of assessment (41).

The validity of the Locus of Control Scale has been reported in several investigations (38, 49). With regard to locus of control and contraceptive effectiveness in young women, Steinlauf found that chance (externality) was associated with unplanned pregnancies among abortion clinic patients ($r = .40$, $p < .01$, $N = 58$) (45). In studying locus of control and achievement, Nowicki concluded that externality was associated with achievement for females

(r = .39) as defined by grade point average, while internality was related to achievement for males (r = .50) (34, 12).

III. SOCIOECONOMIC QUESTIONNAIRE

To investigate the socioeconomic factors, a 23-item socioeconomic questionnaire was used. The initial questions provided the demographic information on age, sex, and race used in this study. Items 4 through 13 assessed socioeconomic financial factors, while the other items elicited religious affiliation and sex education information. The socioeconomic questionnaire used in this research was developed by Anspaugh (1) as a part of a research investigation at The University of Tennessee, Knoxville. The developer employed the research data of Riess and Clayton to formulate the contents of this instrument (1). The socioeconomic questionnaire used the alternative choice technique as a method to gather the data.

IV. CONTRACEPTIVE UTILIZATION QUESTIONNAIRE

To measure the contraceptive utilization of the students in this study, a four-item assessment tool was developed and used. The review of several contraceptive assessment/utilization instruments indicated that Murphy's (33) and Freeman's et al. (13) questionnaires were the most

appropriate for this investigation. However, both of the questionnaires were too long in terms of items and comprehensiveness for use in this particular study. Murphy's questionnaire was designed for use with a collegiate population; however, it contained 100 items and required 45 minutes for completion (33).

Freeman et al. utilized a 34-item questionnaire that elicited attitudes and information about contraceptive use and source of information regarding contraception (13). This questionnaire was designed for administration to a 19 year old and younger population. Consequently, the construction of this questionnaire was accomplished by reviewing existing questionnaires and personal communications with a questionnaire's developer (13). The actual items were developed by this investigator. Each item was discussed by this investigator and the committee in terms of the item's importance to ascertain the necessary data. The doctoral committee consisted of experts in instrument construction and health/sex education. The committee approved the construction and content of the Contraceptive Utilization Questionnaire.

The initial item on the questionnaire was designed to ascertain sexual activity. Affirmative response to sexual intercourse during the past 12 months was used to determine sexual activity. Another item examined whether or not contraception was employed during intercourse.

Still another item examined the frequency of contraceptive utilization. In an effort to determine the method of contraception utilized, the final item was a choice response encompassing seven common means of contraception. Included in the final item were the choices of "none" and "other" (see Appendix C). The alternative choice technique was employed to obtain contraception data. Validity was established via content and expert review.

V. THE POPULATION

For the purpose of this investigation a population of male and female, black and white college students were used. The population consisted of undergraduate students enrolled in health courses at The University of Tennessee, Knoxville, and Knoxville College, Knoxville, during the Spring quarter, 1982. The University of Tennessee students consisted of 149 white and 10 black students. The group was composed of 69 males and 90 females.

The Knoxville College student group was all black and consisted of 14 females and 23 males. These data represent the student population that was determined to be sexually active. Thirty-six percent of the original 344 students tested were sexually inactive. One hundred white students and 25 black students were eliminated from the study because of sexual inactivity. Accordingly, the study population consisted of 196 students, 92 males and 104

females; 47 black and 149 white students.

In terms of student classification, according to the dependent variables, 135 students were contraceptive users while 61 failed to employ the use of contraceptives.

Of the total population, 103 white students and 32 black students were contraceptive users. In contrast, 46 white and 15 black students did not use contraceptives. Eighty-four female and 51 male students were classified as contraceptive users. A total of 41 males and 20 females were determined to be noncontraceptive users. Internal locus of control individuals that used contraceptives totaled 75 while 61 contraceptive users had external locus of control personality variables. The contraceptive nonusers consisted of 34 internal and 27 external locus of control individuals. One hundred and fifteen students were classified as high socioeconomic status and contraceptive users. The low socioeconomic status group consisted of 20 individuals that used contraceptives. The contraceptive nonusers consisted of 49 high socioeconomic status and 12 low socioeconomic status individuals. Ninety-five contraceptive users were classified in the age group of 19-21 year olds and 43 of the students in this age group were nonusers of contraceptives. The sample of The University of Tennessee and Knoxville College students was representative of the total undergraduate student population.

VI. DATA COLLECTION

The instructors were given oral and written instructions on the administration of the questionnaires. Announcements were made to the students explaining the directions for completing the questionnaires. The instructors were requested to supply a copy of the consent form to the students volunteering to participate in this study. Upon completion of the consent form, the participating student was provided with a manila envelope containing one copy each of the three questionnaires (see Appendices A, B, and C). Students were requested to carefully read instructions and to provide a candid response to each item on each of the questionnaires.

The students were asked to return the completed questionnaires in the envelopes and place them in a central place. This procedure was explained to the students. The request was made to ensure complete anonymity of each student participant. Students were assured that they could withdraw from the study at any time during the administration of the questionnaires. Each instructor collected the packets and returned them to the investigator.

VII. STATISTICAL DESIGN

To determine the association between contraceptive use/nonuse and the selected independent variables, Yules Q statistical measure of association was employed.

Yules Q was developed to measure the association between the variables that measured and categorized dichotomously. This association measure was defined by Champion as:

> the ratio of the difference of the products of the diagonal cell frequencies to the sum of the products of the diagonal cell frequencies (5).

The Q coefficient provided two means for interpretation of the computed value of association. The Q value may be interpreted by employing Guilford's interpretation of correlation (17) and/or as a measure of Proportional-Reduction-in-Error (PRE).

The PRE has been defined as the relationship between two variables made possible by using one of the variables as a predictor variable (5). Inspection of the cell frequencies was employed as a means to assess the direction of the variable association on the use of contraceptives (5).

The Internal-External Locus of Control Scale was scored by the summing of the chosen external responses. Tabulations of socioeconomic, demographic, and contraceptive information obtained from the respective questionnaires were completed and the Yule's Q and PRE were computed.

CHAPTER IV

ANALYSIS OF THE DATA

I. INTRODUCTION

The purpose of this chapter was to present and analyze data that were collected via the administration of three paper and pencil instruments. Thus, these data represent interpretations of: 1) Rotter's locus of Control Scale, 2) a socioeconomic questionnaire, and 3) a contraceptive utilization questionnaire that were administered to 344 undergraduate students attending The University of Tennessee, Knoxville, and Knoxville College, Knoxville, during the Spring quarter, 1982.

Thirty-six percent or 125 students were found to be sexually inactive while 219 or 64 percent responded as sexually active. Of the 219 who indicated they were sexually active, 23 or 11 percent failed to complete the questionnaires or were over the age of 30. The responses of the students who were above the age of 30 and/or presented incomplete questionnaires were eliminated from this study. Consequently, a total of 196 subjects were analyzed in this study. In the study group, 37 or 19 percent were surveyed from Knoxville College and a total of 159 or 81 percent were from The University of Tennessee.

Computations were made by race, sex, socioeconomic status (SES), locus of control internal-external personal

variables (LC) and the use of nonuse of contraceptives for sexually active participants of this study.

Yule's Q statistic was employed to determine the association between the independent variables, race, sex, SES, and locus of conrol and the dependent variables, the use and nonuse of contraceptives. In addition, Yule's Q statistic was applied to determine the variation in contraceptive utilization that was attributed to the independent variables, race, sex, socioeconomic status, and locus of control personality variables.

II. CHARACTERISTICS OF STUDY POPULATION

Race

The study population consisted of 149 white students or 76 percent and 47 black students or 24 percent. Ten students or 5 percent of the population were black students attending The University of Tennessee. The distribution of the population by race is presented in Table 1.

Sex

The study population was composed of 92 males or 47 percent of the total number of participants while 104 or 53 percent of the total population were females. This information is presented in Table 1.

TABLE 1

ANALYSIS OF POPULATION DATA, N = 196, BY RACE AND SEX, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Combined		Female		Male	
	Number	Percent	Number	Percent	Number	Percent
Race						
White	149	76	82	42	67	34
Black	47	24	22	11	25	13
Total	196	100	104	53	92	47

Age

Table 2 represents a distribution of the study participants by age. Seventy-nine percent of the total population were 21 years old or younger while 21 percent of the group was above the age of 21 years and under the age of 30 years old. An inference drawn from these data was that this population was representative of an average undergraduate collegiate population for the two institutions.

TABLE 2

ANALYSIS OF POPULATION DATA, N = 196, BY AGE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Age	Number	Percent	Cumulative Percent
16-18	17	9	9
19-21	138	70	79
22-24	34	17	96
25-27	5	3	99
28-30	2	1	100

Religion

A majority, 81 percent of the study population, was Protestant. Catholic students represented 12 percent of the total population. Three students were Jewish and two were Moslem. Four percent of the student population identified no formal religion. This information is shown in Table 3.

Socioeconomic Status

The distribution of the study group's income level is presented in Table 4 which reflects a breakdown according to sex and race. Using the $20,000-$24,999 level as a beginning point for high socioeconomic status (1), the data indicated 26 percent of the black males and 32 percent of the black females were of the low socioeconomic status. In contrast, these data indicated that 14 percent of white males and 6 percent of white females were of the lower socioeconomic group.

Further interpretation revealed that 15 percent of the black population reported parent's income above $40,000 while 85 percent of the black students have an annual parent income below $40,000. Of the white population, 50 percent reported parent's annual income in the $40,000 or above level and 50 percent were below the $40,000 level. Table 5 provides an analysis of the socioeconomic level determined by income level for race. Sixty-six percent of the black student population reported

TABLE 3

ANALYSIS OF POPULATION DATA, N = 196, BY RACE AND RELIGION, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

	Combined Races		Black N = 47		White N = 149	
Category	Number	Percent	Number	Percent	Number	Percent
Protestant	160	81	39	83	121	81
Catholic	23	12	4	9	19	13
Jewish	3	2	0	0	3	2
Moslem	2	1	2	4	0	0
No Formal Religion	8	4	2	4	6	4
Total	196	100	47	100	149	100

TABLE 4

ANALYSIS OF POPULATION DATA, N = 196, FOR SOCIOECONOMIC STATUS ACCORDING TO INCOME BY RACE AND SEX, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

	Black						White					
	Male N = 25			Female N = 22			Male N = 67			Female N = 82		
Income Level	#	%	Cum. %	#	%	Cum. %	#	%	Cum. %	#	%	Cum. %
Uncer $5,000	0	-		3	14	14	0	-		0	-	
$ 5,000- 9,999	6	24	24	3	14	28	0	-		0	-	
$10,000-14,999	2	8	32	1	4	32	5	8	8	1	1	1
$15,000-19,999	1	4	36	0	-	32	4	6	14	4	5	6
$20,000-24,999	1	4	40	1	4	36	1	1	15	7	9	15
$25,000-29,999	3	12	52	3	14	50	7	11	26	9	11	26
$30,000-34,999	5	20	72	5	23	73	11	16	42	18	22	48
$35,000-39,999	2	8	80	2	9	82	4	6	48	5	6	54
$40,000-44,999	1	4	84	1	4	86	9	13	61	10	12	66
$45,000-45,999	0	-	84	0	-	86	5	8	69	8	10	76
Over $50,000	4	16	100	3	14	100	21	31	100	20	23	100

TABLE 5

ANALYSIS OF POPULATION DATA, N = 196, FOR SOCIOECONOMIC STATUS ACCORDING TO INCOME BY RACE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Combined Races		Black		White	
	Number	Percent	Number	Percent	Number	Percent
High Socioeconomic Status	164	84	31	66	133	89
Low Socioeconomic Status	32	16	16	34	16	11
Total	196	100	47	100	149	100

to be of the high SES level, while 89 percent of the white population reported to be of the high SES.

Locus of Control

The distribution of the population in this study was classified according to Internal (I) or External (E) personality variables. Table 6 presents the breakdown of I-E personality variables by race and sex. The breakdown shows that blacks and whites scored approximately the same in terms of locus of control I-E personality variables.

Fifty-one percent of the black population were internal and 49 percent were external. The white group reported 56 percent internals and 44 percent externals. A small difference in the percentages indicated that both groups were more internal than external. Research literature has indicated that blacks were on a whole more external than internal (38). These data indicate that in this collegiate population black students were more internal than external. A comparison between black and white students indicate that a larger percentage of the white students were internal than in the black population.

In terms of male and female differences, females reported 51 percent internals and 49 percent externals. Male students included 60 percent internals and 40 percent externals. These data revealed that more internally controlled students are present in this collegiate student population than external personality variables students.

TABLE 6

ANALYSIS OF POPULATION DATA, N = 196, FOR INTERNAL-EXTERNAL PERSONALITY VARIABLES BY RACE AND SEX, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Combined Sexes		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Internal Personality Variable	108	55	55	60	53	51
Black	24	51	13	14	11	11
White	84	56	42	46	42	40
External Personality Variable	88	45	37	40	51	49
Black	23	49	12	13	11	11
White	64	44	25	27	40	38

Contraceptive Use/Nonuse

Of the students volunteering to participate in this study, 196 fulfilled study requirements and were analyzed in this research. One hundred and thirty-five students indicated that they had utilized a form of contraception during the last intercourse while 61 students or 31 percent of the study population reported the nonuse of contraceptives during the last intercourse. These data varied from those presented in the literature review (7, 33). Studies have shown that less than 50 percent of the sexually active collegiate students use contraceptives. Table 7 presents the analysis of black and white students use/nonuse of contraceptives. Thirty-two or 68 percent of the black student study group were recorded as contraceptive users while 32 percent or 15 black students indicated that they had not used a form of contraception during last intercourse. Sixty-nine percent of the white study population indicated that they had used a contraceptive at the last intercourse and 31 percent or 46 of the white students reported that they did not employ contraceptives at the last intercourse.

In terms of sex, 84 females and 51 males used contraceptives while 41 males and 20 females indicated that they had not utilized contraceptives at the last intercourse. These data are presented in Table 8.

Table 9 shows that 48 percent of the total

TABLE 7

ANALYSIS OF POPULATION DATA, N = 196, FOR CONTRACEPTIVE USE AND NONUSE BY RACE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Number	Percent
Contraceptive User	135	69
Black	32	68
White	103	69
Contraceptive Nonuser	61	31
Black	15	32
White	46	31

TABLE 8

ANALYSIS OF POPULATION DATA, N = 196, FOR CONTRACEPTIVE USE AND NONUSE BY SEX, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Number	Percent
Contraceptive Users	135	69
Male	51	55
Female	84	81
Contraceptive Nonusers	61	31
Male	41	45
Female	20	19

TABLE 9

ANALYSIS OF POPULATION DATA, N = 196, FOR CONTRACEPTIVE USE AND NONUSE BY AGE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

	Age in Years										
	16-18		19-21		22-24		25-27		28-30		
	N = 17		N = 138		N = 34		N = 5		N = 2		
Category	#	%	#	%	#	%	#	%	#	%	Total
Contraceptive Users	10	59	95	69	25	74	3	60	2	100	
Percent of Users	5.0		48.0		13.0		1.5		1.0		68.5
Contraceptive Nonusers	7	41	43	31	9	26	2	40	0	0	
Percent of Nonusers	3.5		22.0		5.0		1.0		0.0		31.5
Total	17	100	138	100	34	100	5	100	2	100	100.0

population or 95 students were contraceptive users between the ages of 19-21 years. In each age group there were more students who were contraceptive users than nonusers. The 16-18 age group reported the largest percent (41 percent) of contraceptive nonusers. All (100 percent) of the students representing the 28-30 year old age group were contraceptive users.

Eighty-four percent of the contraceptive users were Protestant affiliated, 13 percent were Catholic, 1 percent were Jewish, 2 percent were Moslem, and 4 percent reported no formal religion. Among the nonusers of contraceptives, 47 percent were Protestants, 10 percent were Catholic, 2 percent Jewish, and 2 percent reported no formal religion. These data are reflected in Table 10.

The locus of control data indicated that 38 percent or 74 students were internals and contraceptive users in contrast to 61 students or 31 percent of the study population who were externals and contraceptive users. Table 11 reveals that 34 students or 17 percent of the population were internal and contraceptive nonusers.

Of the contraceptive users, 115 students or 59 percent of the study population were classified as high socioeconomic status individuals while only 20 students or 10 percent of the research group were low socioeconomic status and contraceptive users. Forty-nine students or 25 percent of the students were classified as high socioeconomic

TABLE 10

ANALYSIS OF POPULATION DATA, N = 196, FOR CONTRACEPTIVE USE AND NONUSE BY RELIGION, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

	Use		Nonuse			
	N = 135		N = 61		Total	
Category	Number	Percent	Number	Percent	Number	Percent
Protestant	113	84.0	47	77.0	160	81
Catholic	13	10.0	10	16.4	23	12
Jewish	1	1.0	2	3.3	3	2
Moslem	2	2.0	0	0.0	2	1
No Formal Religion	6	4.0	2	3.3	8	4
Total	135	100.0	61	100.0	196	100

TABLE 11

ANALYSIS OF POPULATION DATA, N = 196, FOR CONTRACEPTIVE USE AND NONUSE BY INTERNAL-EXTERNAL PERSONALITY VARIABLES AND RACE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Races Combined		Black N = 47		White N = 149	
	Number	Percent	Number	Percent	Number	Percent
Contraceptive Users						
Internals	74	38	16	34	58	39
Externals	61	31	16	34	45	30
Contraceptive Nonusers						
Internals	34	17	8	17	26	18
Externals	27	14	7	15	20	13

status and nonusers and 12 students or 6 percent were low socioeconomic and nonusers of contraceptives. These data are presented in Table 12.

III. THE TESTING OF THE HYPOTHESES

For the purpose of this study four research hypotheses were developed. In this section of the chapter, each hypothesis will be examined in the null form. This was accomplished on the basis of analysis of the data collected.

Hypothesis 1

H_1 = There is an association between contraceptive use and race.

H_0 = There is no association between contraceptive use and race.

To test the null form of this hypothesis, the contraceptive users and nonusers were divided according to race. These data were expressed dichotomously and measured for association via the Yule's Q statistical measure.

The Q value for the association between race and contraceptive use was determined to be .0241. See Table 13. This value indicated an insignificant association between race and contraceptive use. This insignificant association was further reflected when the Q value was used as a measure of Proportional-Reduction-in-Error (PRE). The PRE provided the measure to determine the amount of variation

TABLE 12

ANALYSIS OF POPULATION DATA, N = 196, FOR CONTRACEPTIVE USE AND NONUSE BY SOCIOECONOMIC STATUS AND RACE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Races Combined		Black N = 47		White N = 149	
	Number	Percent	Number	Percent	Number	Percent
Contraceptive Users						
High SES	115	59	20	43	95	64
Low SES	20	10	11	23	9	6
Contraceptive Nonusers						
High SES	49	25	11	23	38	25
Low SES	12	6	5	11	7	5
Total	196	100	47	100	149	100

in the dependent variable that was caused by the independent variable, race. The PRE of 2.41 percent indicates that only 2.41 percent of the variation in contraceptive utilization in this study group was accounted for by race. Consequently, on the basis of the slight, but negligible association and the low PRE, the null hypothesis was not rejected.

TABLE 13

YULE'S Q ASSOCIATION BETWEEN CONTRACEPTIVE USE AND NONUSE AND RACE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Race	
	White	Black
Contraceptive Use		
Yes	103	32
No	46	15

Yule's Q = .0241 PRE = 2.41 percent

Less than .20 = slight; almost negligible association.

.20-.40 = low correlation; definite, but small association.

.40-.70 = moderate correlation; substantial association.

.70-.90 = high correlation; marked association.

.90-1.00 = very high correlation; very dependable association (17).

Hypothesis 2

H_1 = There is an association between contraceptive use and sex.

H_0 = There is no association between contraceptive use and sex.

To test the null form of this hypothesis, the students were divided dichotomously according to contraceptive use/nonuse and according to sex.

The Q value of the association between contraceptive use/nonuse and sex was found to be .5430. See Table 14. This value indicated that there was a moderate and substantial relationship between the dependent variables male and female. Employing the Q value as a PRE, it was found that 54.30 percent of the variation in contraceptive utilization in this research group was due to sex. On further examination of the cell frequencies, it was found that males were more associated with the nonuse of contraceptives than female students. Forty-five percent of the males and 19 percent of the females indicated that they had not utilized contraceptives at the last intercourse.

Eighty-one percent of the female students reported the use of a method of contraception at the last intercourse. The association obtained did not vary substantially in terms of contraceptive utilization by males and females as reported in the literature. Much has been written that indicates that the male undergraduate individual is a low

user of contraceptives.

Furthermore, the data that were obtained from this population regarding sex and contraceptive utilization seems to substantiate the research hypothesis, consequently this null hypothesis was rejected.

TABLE 14

YULE'S Q ASSOCIATION BETWEEN CONTRACEPTIVE USE AND NONUSE AND SEX, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

	Sex	
Category	Female	Male
Contraceptive Use		
Yes	84	51
No	20	41

Yule's Q = .5430 PRE = 54.30 percent

Less than .20 = slight; almost negligible association.

.20-.40 = low correlation; definite, but small association.

.40-.70 = moderate correlation; substantial association.

.70-.90 = high correlation; marked association.

.90-1.00 = very high correlation; very dependable association (17).

Hypothesis 3

H_1 = There is an association between contraceptive use and internal-external locus of control personality variables.

H_0 = There is no association between contraceptive use and internal-external locus of control personality variables.

To test the null form of this hypothesis, the students were divided dichotomously according to contraceptive use/nonuse and internal-external locus of control personality variables. In addition, the variables of race and sex were expressed dichotomously in terms of locus of control personality variables and contraceptive use/nonuse and measured by Yule's Q for the association and PRE.

A Q value of .0186 was computed as a measure of association between locus of control and contraceptive use/nonuse in this study population. See Table 15. The Q value indicated that locus of control personality variables and the use/nonuse of contraceptive have a slight, almost negligible association (17) in this study population. The PRE of 1.86 percent revealed that locus of control personality variables accounted for only 1.86 percent of the variation of contraceptive use/nonuse in this research group.

Further analysis revealed that among black students 6.66 percent of the variation in the black population

TABLE 15

YULE'S Q ASSOCIATION BETWEEN CONTRACEPTIVE USE AND NONUSE AND LOCUS OF CONTROL I-E PERSONALITY VARIABLES, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Locus of Control	
	Internal	External
Contraceptive Use		
Yes	74	61
No	34	27

Yule's Q = .0186 PRE = 1.86 percent

Less than .20 = slight; almost negligible association.

.20-.40 = low correlation; definite, but small association.

.40-.70 = moderate correlation; substantial association.

.70-.90 = high correlation; marked association.

.90-1.00 = very high correlation; very dependable association (17).

use/nonuse of contraceptives was due to locus of control personality variables. See Table 16. Sixty-seven percent of the black internal students reported using contraceptives while 70 percent of the externals indicated using contraceptices. The Q value of -.0666 denoted that there was a slight almost nill inverse association among black students' personality variables and the use/nonuse of contraceptives. This inverse association indicated that the more internal the black group becomes, it would appear that the less they would use contraceptives.

Among white students in this study group, there was an association of .0042 as indicated by the Q coefficient. Subsequently the PRE revealed that only .42 percent of the variation of contraceptive use/nonuse among white participants was attributed to locus of control personality variables. See Table 16.

Further examination of locus of control personality variables revealed a Q value of .0238 among females and a Q value of .0466 among males. These statistics indicate slight but insignificant relationships. Utilizing the black and white external population it was found that a Q value of .0078 existed. A Q value of .0121 was determined to exist between internal black and white students and contraceptive use/nonuse. These data provided additional support of a lack of significant association between locus of control and contraceptive use/nonuse. See Table 16.

The Q values and PRE's indicated that no significant relationship existed between the dependent variables and the independent variables. As a result the null hypothesis was not rejected.

TABLE 16

YULE'S Q ASSOCIATION BETWEEN CONTRACEPTIVE USE AND NONUSE AND LOCUS OF CONTROL PERSONALITY VARIABLES, RACE, SEX, INTERNALS, AND EXTERNALS, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Q Value	PRE
Contraceptive Use/Nonuse		
Black--Internals and Externals	-.0666	6.66
White--Internals and Externals	.0042	.42
Female--Internals and Externals	.0238	2.38
Male--Internals and Externals	.0466	4.66
Externals--Black and White	.0078	.78
Internals--Black and White	.0121	1.21

Less than .20 = slight; almost negligible association.

.20-.40 = low correlation; definite, but small association.

.40-.70 = moderate correlation; substantial association.

.70-.90 = high correlation; marked association.

.90-1.00 = very high correlation; very dependable association (17).

Hypothesis 4

H_1 = There is an association between contraceptive use and socioeconomic status.

H_0 = There is no association between contraceptive use and socioeconomic status.

To test the null form of this hypothesis, the contraceptive users and nonusers were divided according to socioeconomic status. These data were expressed dichotomously and measured for association by the Yule's Q statistics. Additionally, the variable race was expressed dichotomously according to socioeconomic status (high and low) and contraceptive use and nonuse. The frequencies were measured for association and PRE by Yule's Q.

One hundred and sixty-four students reported that they were in the high socioeconomic level while only 32 reported to be in the low socioeconomic group. Using the Q statistics, an association of .1694 was determined between socioeconomic status and the use/nonuse of contraceptives in this study group. See Table 17. In other words, 16.94 percent of the variation in contraceptive use/nonuse in this population can be attributed to socioeconomic status as indicated by the PRE.

Among the black study participants, a Q value of .0950 was derived which indicated a negligible association between black high and low socioeconomic status groups and the use/nonuse of contraceptives. Sixty-five percent of

TABLE 17

YULE'S Q ASSOCIATION BETWEEN CONTRACEPTIVE USE AND NONUSE AND SOCIOECONOMIC STATUS AND RACE, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Q Value	PRE
Contraceptive Use/Nonuse		
Socioeconomic Status		
High and Low	.1694	16.94
High and Low Blacks	.0950	9.50
High and Low Whites	.3207*	32.07

*Significant association.

Less than .20 = slight; almost negligible association.

.20-.40 = low correlation; definite, but small association.

.40-170 = moderate correlation; substantial association.

.70-.90 = high correlation; marked association.

.90-1.00 = very high correlation; very dependable association (17).

the high SES and 69 percent of the low SES black students reported that they were contraceptive users. Thirty-five percent of the high SES and 31 percent of the low SES black students indicated that they had not utilized contraceptives at their last intercourse. Nine and one-half percent of the variation in contraceptive behavior among black students appears to be attributed to SES.

The white population had a Q value of .3207 as a measure of association between socioeconomic status and contraceptive use/nonuse. This degree of association indicated a definite but small relationship between the independent and dependent variables. Forty-four percent of the white low SES group were noncontraceptors while only 29 percent of the white high SES students were noncontraceptive users. The PRE indicates that 32.07 percent of the variation in contraceptive use/nonuse among white study participants would appear to be attributed to socioeconomic status. This may be further interpreted to indicate that white low socioeconomic status students would appear to use contraceptives at a measure less than the high SES white students. See Table 17.

The degree of association, Q = .1694, between contraceptive use/nonuse and the socioeconomic status of the study population appears to be slight and almost negligible. The association, Q = .0950, between contraceptive use/nonuse and high and low socioeconomical groups

of black students appears to be slight and insignificant. However, among the white students in this study, there appeared to be a definite relationship between socio-economic status and contraceptive use/nonuse. The Q values and PRE's revealed that a significant association between contraceptive use/nonuse and socioeconomic status did not exist in the white population. As a result, this null hypothesis was not rejected based on the overall statistical association.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The purpose of this study was to assess the role of race, sex, locus of control internal-external personality variables, and socioeconomic status on the utilization of contraceptives among sexually active undergraduate college and university students. The study addressed four basic questions:

1. Is there an association between contraceptive use/nonuse and race?

2. Is there an association between contraceptive use/nonuse and sex?

3. Is there an association between contraceptive use/nonuse and internal-external locus of control personality variables?

4. Is there an association between contraceptive use/nonuse and socioeconomic status?

Three paper and pencil questionnaires were administered to 344 undergraduate students at The University of Tennessee, Knoxville, and Knoxville College, Knoxville, during the Spring quarter, 1982.

A contraceptive utilization questionnaire was administered to categorize students into groups of sexually active contraceptive users and nonusers. One hundred and

thirty-five students were determined to be sexually active contraceptive users and 61 were determined to be sexually active nonusers of contraceptives.

Rotter's Internal-External Locus of Control Scale was administered for the purpose of determining the internal or external locus of control among the study participants. One hundred and eight subjects were found to have internal locus of control and 88 subjects were found to have external locus of control.

The third instrument, a socioeconomic questionnaire was used to obtain personal and family demographic information from the study participants. Race, sex, age, financial, and religious information were gathered from this questionnaire. One hundred and sixty-four students responded as high socioeconomic status while 32 indicated a low socioeconomic status. The black student group consisted of 47 subjects. The white group numbered 149 students. Ninety-two of the subjects were female and 104 were male.

The study population consisted of: 104 white students, 31 black students; 51 male students, 84 female students; 74 internal locus of control (I-LC) students, 61 external locus of control (E-LC) students; 115 high socioeconomic status (H-SES) students, 20 low socioeconomic status (L-SES) students; 37 white male students, 14 black male students, 66 white female students, 18 black female

students; 58 white I-LC students, 45 white E-LC students, 16 black I-LC students, 16 black E-LC students, 43 female I-LC students, 41 female E-LC students, 31 male I-LC students, 20 male E-LC students; 95 white H-SES students, 9 white L-SES students, 90 black H-SES students, 11 black L-SES students that were contraceptive users.

The contraceptive nonusers research group consisted of: 46 white students, 15 black students; 41 male students, 20 female students; 34 I-LC students, 27 E-LC students; 49 H-SES students, 12 L-SES students; 30 white male students, 11 black male students, 16 white female students, 4 black female students; 8 black I-LC students, 7 black E-LC students, 26 white I-LC students, 20 white E-LC students, 10 female I-LC students, 10 female E-LC students, 24 male I-LC students, 17 male E-LC students; 38 white H-SES students, 7 white L-SES students, 11 black H-SES students, and 5 black L-SES students.

The statistical measure of association between the selected independent variables and the dependent variables was obtained via the use of Yule's Q. As an additional step to determine the role of the independent variables on contraceptive use/nonuse, the Q association coefficient was employed as a measure of the Proportional-Reduction-in-Error (PRE).

II. FINDINGS

Based on the analyses of the data in this study, the major findings were as follows:

1. Sixty-four percent of the 344 initial study participants were sexually active.

2. Sixty-nine percent of the sexually active students were contraceptive users.

Sex

3. Fifty-five percent of the male sexually active students were contraceptive users.

4. Eighty-one percent of the female sexually active students were contraceptive users.

5. Males demonstrated greater nonuse of contraceptives than did females.

6. Females demonstrated higher use of contraceptives than did males.

Race

7. Sixty-eight percent of the black students were contraceptive users.

8. Sixty-nine percent of the white students were contraceptive users.

9. White and black students did not demonstrate differences in contraceptive use.

Locus of Control

10. Fifty-five percent of the sexually active students had internal locus of control and were contraceptive users.

11. Forty-five percent of the sexually active students had external locus of control and were contraceptive users.

12. Fifty-six percent of the group had internal locus of control and were noncontraceptive users.

13. Forty-four percent of the study group had external locus of control and were noncontraceptive users.

14. Black and white students did not demonstrate a difference in locus of control personality variables and contraceptive use/nonuse.

15. The black population was as internal as the white population.

16. Female externals and internals demonstrated no difference in contraceptive use/nonuse.

17. Male externals and internals demonstrated no difference in contraceptive use/nonuse.

Socioeconomic Status

18. Eighty-four percent of the study group was in the high socioeconomic status.

19. Sixteen percent of the study group was in the low socioeconomic status.

20. Sixty-six percent of the black population was in

the high socioeconomic status.

21. Thirty-four percent of the black population was in the low socioeconomic status.

22. Eighty-nine percent of the white population was in the high socioeconomic status.

23. Eleven percent of the white population was in the low socioeconomic status.

24. White students reported higher socioeconomic status than the black students.

25. There was a difference in white high and low socioeconomic status and contraceptive use/nonuse.

26. White students reporting low socioeconomic status demonstrated higher noncontraceptive use.

III. CONCLUSIONS

The following conclusions were made based on the findings derived from this study:

1. Race is not a factor in contraceptive use/nonuse by sexually active college and university undergraduate students.

2. The sex of the subject is a factor in contraceptive use/nonuse by sexually active college and university undergraduate students. Overall, male students are non-users of contraceptives.

3. Locus of control internal-external personality variables are not factors in contraceptive use/nonuse by

sexually active college and university undergraduate students.

4. Socioeconomic status is not a factor in contraceptive use/nonuse by sexually active college and university undergraduate students. However, when groups were studied separately, socioeconomic status was a factor in contraceptive nonuse among white low socioeconomic status students.

IV. RECOMMENDATIONS

The following recommendations were based on the conclusions reached in this study:

1. A study is needed that replicates this research with the incorporation of an additional question(s) concerning female contraceptive use in relation to male use/nonuse of contraceptives.

2. Health education/sex education programs should place an emphasis on male and female contraceptive behavior, with increased focus on the males because of their ineptness toward contraceptive behavior.

3. A longitudinal study should be conducted to examine the relationship of socioeconomic status changes in relation to contraceptive use/nonuse.

4. A multi-discriminate analysis utilizing the data from this study should be conducted to determine the interactive effects of the independent variables on

contraceptive use/nonuse among the students at Knoxville College and The University of Tennessee.

CHAPTER VI

THE STUDY IN RETROSPECT

Premarital sexual activity is not a new phenomenon among college students. However, only in the past two decades have our college and university officials and policy makers acknowledged its existence. The academic community, in addition to their formal academic functions are essentially responsible for helping students to become fully functioning human beings. A portion of this responsibility involves the appropriate psychosexual development of the college students. The academic community can meet some psychosexual developmental needs of the students by providing accurate and complete information about sexual and contraceptive behavior. In addition, providing services in and promoting research on matters concerning sexual and contraceptive attitudes, values, and practices will promote and aid in this endeavor.

The present research grew out of such a responsibility. Specifically, the interest and responsibility focused on the determinants of contraceptive use/nonuse among sexually active collegiate students. To assess the role of race, sex, locus of control personality variables, and socioeconomic status on the use/nonuse of contraceptives among undergraduate college students was the primary purpose of this investigation. The participants were selected from

two different institutions. The University of Tennessee, Knoxville, a large institution, provided a population that consisted primarily of white, high socioeconomic status college students. In contrast, Knoxville College, a small liberal arts institution, provided a study group that was black and almost homogeneous in terms of socioeconomic status. The combination of the two groups provided this investigator with a racial population that was relatively equal to the minority and majority population percents throughout the country.

The conclusions drawn from the review of the literature, analyzed data, and findings of this research provide important suggestions regarding contraceptive behavior in this collegiate student population.

A majority (64 percent) of the students surveyed were sexually active. This statistic indicated that the students at The University of Tennessee and Knoxville College were as sexually active as students surveyed in other areas of this country according to the related research presented herein. In terms of contraceptive use in the sexually active student population, the finding that 69 percent were contraceptive users was much higher than statistics obtained in other studies reviewed in the literature. Another interesting finding was the females were contraceptive users at a substantially higher percentage than males. This observation indicated that the

female college students differed significantly from females in other studies on the use of contraceptives in a collegiate population. Professional literature indicated female collegiates as low contraceptors.

A great amount of data have been produced in recent years that provide accounts of hormonal preparations and intrauterine devices not being safe means of contraceptives. The writer has observed during discussion of contraceptive methods, that many females do not consider information regarding the hazards of hormones and intrauterine devices as factual. This may be due to the fact that their mothers and/or important other females are/have used these contraceptive methods for years. Consequently, these contraceptive methods are not regarded as dangerous to their health and may help explain the high contraceptive (pills) use among females in this population. In addition, this may provide additional insight into the reasons why 46 percent of the males in this population were nonusers of contraceptives. In other words, the male students may not feel bound to provide contraception since the female partners were "on the pill." Observations by this writer of male students indicated that, initially they lack concern about contraceptive devices, except as defenses against sexually transmitted diseases.

An additional observation of this writer was that only three students (one male and two females) in a class

of 20 students, taught by this writer indicated sexual activity. The ages of the students in this class ranged from 17-25 years old. Five students were male and 15 were female. The students' candid responses were requested, however, the students may have felt concerned that this writer may have had a means of determining who were sexually active. Consequently, this may have influenced their responses. This concern may be explained by the fact that many of the students in the class perceived that "older" significant others believe that sexual activity is linked to permissiveness and the lack of moral and spiritual values. In classes taught by other instructors, the students' responses to sexual activity were representative of the literature reviewed herein.

As previously indicated, a definite association was found between males and the nonuse of contraceptives in this study. Much of the focus of contraceptive behavior of the young has been directed toward the female. This factor was substantiated by the literature reviewed in this study. Female sexual activity in the collegiate community is often prompted by male initiation. This indicates that more emphases should be placed on male contraceptive responsibility for the well being of both of the participants in coitus. This is essential for achieving positive and effective male psychosexual behavior.

Realistically, there are a variety of ways to

emphasize how and why the male should become involved in male and female contraceptive methods and utilization. A teaching and training curriculum for family life, family planning and sex education materials should be introduced to males in junior high school and/or high school and continued through the collegiate experience. This curriculum should include instruction on the meaning of parenthood and an understanding of contraceptive use for both males and females. The same basic program should be provided to females to maximize appropriate psychosexual behavior.

There was little or no difference between black and white contraceptive use/nonuse in this population. A difference was only observed when comparing percentages. Sixty-nine percent of the white and 68 percent of the black student population were contraceptive users. In fact, there was no statistical association between contraceptive use/nonuse and race. While some of the literature does foster the belief that sexual and contraceptive behavior is race related, it is this writer's opinion that these data should be further examined and analyzed in terms of socioeconomic status. The findings of this study indicate some, but slight, association between contraceptive use and socioeconomic status. In addition, this writer is of the opinion that should health statistics be evaluated on the basis of the socioeconomic status rather

than race, interesting and helpful results will derive. While the literature does contain data which indicate that blacks are not effective contraceptors, it must be kept in mind that many more black students are of the lower socioeconomic status than whites. This fact was observed in the data presented in this study.

In the white population, a definite association was found between low socioeconomic status students and contraceptive nonuse. This finding may be attributed to the small percentage of the white population that was classified as low socioeconomic status. However, further exploration of this finding by teachers, health educators, and researchers may provide avenues to present contraceptive behavior to all socioeconomic status students in favorable and worthwhile manners.

It has been a sad truism that long-standing traditions in research have hindered the exploration of human behavior using factors that may produce results that will serve to benefit and complement all of the population. Admittingly, much waste is accumulated in time and money because of efforts to explain human behavior in terms of genetic rather than the more appropriate cultural and social factors.

Locus of control personality variables as a psychological determinant and interpretation gained much attention in earlier decades. This attention has focused

primarily on Rotter's original social learning theory construct. A focus of this study was on the measurement of internal-external locus of control of collegiate students and the association between locus of control and contraceptive use/nonuse. The data analyses indicated that there was no association between contraceptive use/nonuse and locus of control personality variables. This does not vary from late professional literature on the association between the two variables. It should be mentioned that early use of the locus of control scale as reported in the literature, did find slight associations between contraceptive use/nonuse and locus of control internal-external personality variables. In light of the findings of this study and reports in the literature, it appears that other measures of personality correlates should be developed and researched in the area of human behavior. In addition, the Rotter's Locus of Control Scale should be re-evaluated in terms of theory and instrumentation content.

The most important resulting aspects of this study were:

1. There is a need for increased applied emphases in health education on male collegiate contraceptive behavior and responsibility.

2. There is a need for an innovative and effective health/sex education program that focuses on contraceptive behavioral needs of low socioeconomic status individuals.

3. Females and high socioeconomic status individuals are in need of continued and upgraded contraceptive education.

4. Locus of control and race were variables that did not affect the use of contraceptive use/nonuse among this collegiate population.

In view of the abovementioned, it appears that the sexually active collegiate population would benefit from health education programs and services that are primarily geared toward both sexes, with increased emphases on the male; and research is needed to determine the role of socioeconomic status on the use/nonuse of contraceptives among individuals of varying cultural affiliations.

It is anticipated that future researchers will employ the results of this study to aid in the development of health education methods and materials that are geared toward improving contraceptive behavior among collegiate students in terms of safety and effectiveness.

Finally, the writer's expectations are that this research will provide assistance in developing and providing training programs for personnel involved in human sexuality instruction and services.

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APPENDICES

APPENDIX A

LOCUS OF CONTROL SCALE

ROTTER INTERNAL-EXTERNAL LOCUS OF CONTROL SCALE

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. For each numbered question mark an "X" on the line beside either the a or b, whichever you choose as the statement more true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

Remember:

Select that alternative which you personally believe to be more true.

I more strongly believe that:

* 1a. Children get into trouble because their parents punish them too much.
___ b. The trouble with most children nowadays is that their parents are too easy with them.

E 2a. Many of the unhappy things in people's lives are partly due to bad luck.
___ b. People's misfortunes result from the mistakes they make.

___ 3a. One of the major reasons why we have wars is because people don't take enough interest in politics.
E b. There will always be wars, no matter how hard people try to prevent them.

___ 4a. In the long run, people get the respect they deserve in this world.
E b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

___ 5a. The idea that teachers are unfair to students is nonsense.
E b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

E 6a. Without the right breaks one cannot be an effective leader.
___ b. Capable people who fail to become leaders have not taken advantage of their opportunities.

E 7a. No matter how hard you try some people just don't like you.
___ b. People who can't get others to like them don't understand how to get along with others.

* 8a. Heredity plays the major role in determining one's personality.
___ b. It is one's experiences in life which determine what they're like.

E 9a. I have often found that what is going to happen will happen.
___ b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

___10a. In the case of the well prepared student, there is rarely, if ever, such a thing as an unfair test.
E b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

___11a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
E b. Getting a good job depends mainly on being in the right place at the right time.

___12a. The average citizen can have an influence in government decisions.
E b. The world is run by the few people in power, and there is not much the little guy can do about it.

___13a. When I make plans, I am almost certain that I can make them work.
E b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

* 14a. There are certain people who are just no good.
___ b. There is some good in everybody.

___15a. In my case, getting what I want has little or nothing to do with my luck.
E b. Many times we might just as well decide what to do by flipping a coin.

E 16a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
___ b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

E 17a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
___ b. By taking an active part in political and social affairs, the people can control world events.

E 18a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
___ b. There really is no such thing as "luck."

* 19a. One should always be willing to admit mistakes.
___ b. It is usually best to cover up one's mistakes.

E 20a. It is hard to know whether or not a person really likes you.
___ b. How many friends you have depends upon how nice a person you are.

E 21a. In the long run, the bad things that happen to us are balanced by the good ones.
___ b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

___ 22a. With enough effort we can wipe out political corruption.
E b. It is difficult for people to have much control over things politicians do in office.

E 23a. Sometimes I can't understand how teachers arrive at the grades they give.
___ b. There is a direct connection between how hard I study and the grades I get.

E 24a. A good leader expects people to decide for themselves what they should do.
___ b. A good leader makes it clear to everybody what their jobs are.

E 25a. Many times I feel that I have little influence over the things that happen to me.
___ b. It is impossible for me to believe that chance or luck plays an important role in my life.

___26a. People are lonely because they don't try to be friendly.
E b. There's not much use in trying too hard to please people, if they like you, they like you.

* 27a. There is too much emphasis on athletics in high school.
___ b. Team sports are an excellent way to build character.

___28a. What happens to me is my own doing.
E b. Sometimes I feel that I don't have enough control over the direction my life is taking.

E 29a. Most of the time I can't understand why politicians behave the way they do.
___ b. In the long run, the people are responsible for bad government on a national as well as on a local level.

(*) filler items

(E) external

APPENDIX B

SOCIOECONOMIC QUESTIONNAIRE

SOCIOECONOMIC QUESTIONNAIRE

Please answer each question by checking the box which applies to your status or your family's status. Check a response to <u>each</u> question.

1. Sex: 1. ___ male
2. ___ female

Race: B ___
W ___
Other ___

2. Age: _____

Married ___
Unmarried ___

3. Class in school: 1. ___ freshman 3. ___ junior
2. ___ sophomore 4. ___ senior

4. Are you the ___ child in your family?
0. ___ only
1. ___ first
2. ___ second
3. ___ third
4. ___ fourth
5. ___ fifth
6. ___ other (please explain) _____

5. How many of your brothers and sisters are older than you?
1. ___ brothers
2. ___ sisters

6. How many of your brothers and sisters are younger than you?
1. ___ brothers
2. ___ sisters

7. What is the approximate size of the community you have lived in most?
1. ___ under 1,000
2. ___ 5,000 to 10,000
3. ___ 10,000 to 29,999
4. ___ 30,000 to 59,999
5. ___ 60,000 to 99,999
6. ___ 100,000 to 299,999
7. ___ 300,000 to 599,999
8. ___ 600,000 to 1 million
9. ___ over 1 million

8. What is the highest level of education attained by your father?
1. ___ none
2. ___ elementary school
3. ___ some high school
4. ___ graduated from high school
5. ___ some college

6. ___ graduated from college
7. ___ master's and/or Ph.D. degree
8. ___ law degree
9. ___ medical/dental degree
10. ___ other (please explain) _____

9. What is the highest level of education attained by your mother?
   1. ___ none
   2. ___ elementary school
   3. ___ some high school
   4. ___ graduated from high school
   5. ___ some college
   6. ___ graduated from college
   7. ___ master's and or Ph.D. degree
   8. ___ law degree
   9. ___ medical/dental degree
   10. ___ other (please explain) _____

10. Approximately what is the current economic status (annual income from all sources) of your parents? Mark one.
   1. ___ under $5,000
   2. ___ $5,000 to 9,999
   3. ___ $10,000 to 14,999
   4. ___ $15,000 to 19,999
   5. ___ $20,000 to 24,999
   6. ___ $25,000 to 29,999
   7. ___ $30,000 to 34,999
   8. ___ $35,000 to 39,999
   9. ___ $40,000 to 44,999
   10. ___ $45,000 to 49,999
   11. ___ over $50,000

11. Please classify your father's major occupation by marking the category that seems to fit best. Mark one.
   1. ___ professional 1 (typically requires a doctorate or advanced professional degree--such as lawyer, doctor, professor, minister, etc.).
   2. ___ professional 2 (typically requires a master's degree or some professional training beyond college--such as teacher, engineer, accountant, etc.).
   3. ___ managerial or executive.
   4. ___ semi-professional or technical (lab-technician).
   5. ___ public official or supervisor.
   6. ___ small business proprietor or farm owner.
   7. ___ sales or skilled clerical (such as department store salesman, stock clerk, etc.).
   8. ___ semi-skilled or general labor (such as machine operator, farm laborer, construction worker).

12. Please classify your mother's major occupation by marking the category that seems to fit best. Mark one.
    1. ___ professional 1 (typically requires a doctorate or advanced professional degree--such as lawyer, doctor, professor, minister, etc.).
    2. ___ professional 2 (typically requires a master's degree or some professional training beyond college--such as teacher, engineer, accountant, etc.).
    3. ___ managerial or executive.
    4. ___ semi-professional or technical (lab-technician).
    5. ___ public official or supervisor.
    6. ___ small business proprietor or farm owner.
    7. ___ sales or skilled clerical (such as department store salesman, stock clerk, etc.).
    8. ___ semi-skilled or general labor (such as machine operator, farm laborer, construction worker).

13. Are both of your natural parents living together?
    1. ___ yes
    2. ___ no
    3. ___ other (please explain) _____

14. Which of the following best describes the religious affiliation or identification of your father? (Mark one even if your father is not living).
    1. ___ Baptist
    2. ___ Methodist
    3. ___ Presbyterian
    4. ___ Episcopal
    5. ___ Catholic
    6. ___ Jewish
    7. ___ no formal religion
    8. ___ no definite religious beliefs
    9. ___ other (please explain) _____

15. Which of the following best describes the religious affiliation or identification of your mother? (Mark one even if your mother is not living).
    1. ___ Baptist
    2. ___ Methodist
    3. ___ Presbyterian
    4. ___ Episcopal
    5. ___ Catholic
    6. ___ Jewish
    7. ___ no formal religion
    8. ___ no definite religious beliefs
    9. ___ other (please explain) _____

16. Which of the following best describes your religious affiliation or identification?
    1. ___ Baptist
    2. ___ Methodist
    3. ___ Presbyterian
    4. ___ Episcopal
    5. ___ Catholic
    6. ___ Jewish
    7. ___ no formal religion
    8. ___ no definite religious beliefs
    9. ___ other (please explain)

17. How often do you attend a church, synagogue, etc.?
    1. ___ more than twice a week
    2. ___ twice a week
    3. ___ once a week
    4. ___ several times a month
    5. ___ at least once a month
    6. ___ a few times a year
    7. ___ seldom
    8. ___ never

18. Do you belong to a "social" fraternity or sorority on campus?
    1. ___ yes
    2. ___ no

19. What is your status in a fraternity or sorority?
    0. ___ pledge
    1. ___ active
    2. ___ not a member

20. Have you ever had formal sex education instruction?
    1. ___ yes
    2. ___ no

21. From what source was the formal sex education received?

    1. ___ school
    2. ___ church
    3. ___ home
    4. ___ other (please explain) _____

22. If received at school, what level was it taught? Check one or more.
    1. ___ elementary
    2. ___ junior high
    3. ___ high school
    4. ___ college

23. What was the quality of the formal sex education?
    1. ___ never received formal sex education
    2. ___ excellent
    3. ___ good
    4. ___ poor

APPENDIX C

CONTRACEPTIVE UTILIZATION QUESTIONNAIRE

CONTRACEPTIVE UTILIZATION QUESTIONNAIRE

The following questions pertain to certain types of contraception behaviors. Although the items are personal, we would appreciate and expect your honest responses. This questionnaire is COMPLETELY CONFIDENTIAL. The information on the questionnaire will be confidentially coded and recorded and the questionnaire will be destroyed. Thank you for your participation in the effort.

1. During the past did you engage in sexual intercourse?

    1. ___ yes
    2. ___ no

2. Was contraception used during intercourse?

    1. ___ yes
    2. ___ no

3. What was the frequency of contraceptive use?

    1. ___ always
    2. ___ sometimes
    3. ___ never

4. Which contraceptive technique did you use?

    1. ___ condom
    2. ___ rhythm
    3. ___ withdrawal
    4. ___ diaphragm
    5. ___ IUD
    6. ___ pill
    7. ___ foam
    8. ___ none
    9. ___ other (please explain) _____

APPENDIX D

RESEARCH GROUPS USED IN THIS STUDY

RESEARCH GROUPS USED IN THIS STUDY

CONTRACEPTION USE				SOCIOECONOMIC LEVEL				INTERNAL-EXTERNAL LOCUS OF CONTROL			
Male		Female		Male		Female		Male		Female	
B	W	B	W	B	W	B	W	B	W	B	W
Use of Contraception				High	or	Low		Internal or External			
Do Not Use Contraception				High	or	Low		Internal or External			

B = black

W = white

APPENDIX E

SUMMARY TABLE

TABLE 18

SUMMARY OF YULE'S Q ASSOCIATION BETWEEN CONTRACEPTIVE USE AND NONUSE AND RACE, SEX, LOCUS OF CONTROL PERSONALITY VARIABLES, AND SOCIOECONOMIC STATUS, KNOXVILLE COLLEGE AND UNIVERSITY OF TENNESSEE STUDENTS, 1982

Category	Q Value	PRE
1. Race	.0241	2.40
2. Sex	*.5430	54.30
White	*.5396	53.96
Black	*.5590	55.90
Female (Black/White)	.0434	4.34
Male (Black/White)	.0157	1.57
3. Locus of Control (I-E)	.0186	1.86
Black (I-E)	-.0666	6.66
White (I-E0	.0042	.42
Female (I-E)	.0238	2.38
Male (I-E)	.0466	4.66
Black and White (E)	.0078	.78
Black and White (I)	.0121	1.21
4. Socioeconomic Status (H-L)	.1694	16.94
Black (H-L)	.0950	9.50
White (H-L)	*.3207	32.07

*Significant association.

APPENDIX F

CORRESPONDENCE

March 25, 1982

Ms. Cheryl Slaughter Ellis
Division of Health & Safety
1914 Andy Holt Avenue
The University of Tennessee
Knoxville, TN 37916

Dear Ms. Ellis:

Permission is granted to use the socioeconomic questionnaire (Part II) that is contained in my dissertation. I would like to see a summary of your research when completed. Best of luck in your research.

Sincerely,

David Anspaugh, Ed.D.
Division of Health Science & Safety

May 7, 1982

Dr. L. Evans Roth
Vice Chancellor for Graduate
Studies and Research
404 Andy Holt Tower
CAMPUS

Dear Dr. Roth:

Cheryl Anitra Slaughter Ellis, Department of Health and Safety, submitted a project entitled "The Relationships of Selected Variables to the Use/Nonuse of Contraceptives Among Undergraduate College Students," CRP #1384. The departmental human subjects committee has reviewed and approved this project. In their judgment, this project comes within that section of their approved guidelines which permits the Chairperson of the Committee on Research Participation to give approval to the project on behalf of the Committee.

After reviewing this project, I certify that it does conform to Committee and Departmental guidelines. Therefore, acting on behalf of the Committee, I have approved this project.

The responsibility of the project director includes the following:

1. Prior approval from the Committee must be obtained before any changes in protocol are instituted.

2. Signed consent statements from each experimental subject must be kept for the duration of the project and for at least three years thereafter.

3. The Committee must be informed of any physical or psychological effects on subjects for re-evaluation of the protocol approval.

4. A Statement must be submitted (Form D) at 12-month intervals attesting to the current status of the project (protocol is still in effect, project is terminated, etc.).

The Committee wishes the project director success in her research endeavors.

Sincerely,

L.B. Cebik, Chairman
Committee on Research
Participation

cc: Cheryl Ellis
Warren J. Huffman

VITA

Cheryl Anitra Slaughter Ellis was born in Jackson, Mississippi, July 9, 1945. She attended elementary school at West End Elementary School, Meridian, Mississippi. After completing the eleventh grade at E.T. Hawkins High School, Forest, Mississippi, she entered Tougaloo College, Tougaloo, Mississippi, as an accelerated freshman.

She received the Bachelor of Science degree in Biology, 1974, and the Master's of Science in Teaching in Biology, 1975, from Jackson State University. While working toward the master's degree, Cheryl served as a graduate teaching assistant in Biology. Much of her professional experience has been in community health agency settings. Cheryl served as Health Services Director for two community agencies and Director of Central Mississippi Perinatal Project. In 1979, she began working toward a master's degree in Community Health Education and served as a graduate teaching assistant. In August 1980, she received the Master's of Science degree from the University of Southern Mississippi. Later, in August 1980, Cheryl entered the Doctor of Philosophy program in Health Education at The University of Tennessee, Knoxville. From 1980 to 1982, while working on her doctorate, Cheryl served as a doctoral teaching assistant in the Division of Health and Safety. She received the Doctor of Philosophy degree in Health Education in August 1982.

Cheryl is married to Sidney W. Ellis and is the mother of two daughters, Kelly Anjohnette and Crystal Angel.