THE EFFECT OF LOCUS OF CONTROL ON CONTRACEPTIVE USE BY SEXUALLY ACTIVE TEENAGE WOMEN

by

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TABLE OF CONTENTS

CHAPTER		PAGE
I	INTRODUCTION	1
	Review of the Literature	4
	Relation of Knowledge of Contraception to Contraceptive Use	4
	Relation of Health Knowledge to Locus of Control	6
	Relation of Contraceptive Use to Locus of Control	8
	Interrelation of Knowledge, Locus of Control and Educational Approach	10
	Statement of Problem	11
	Hypotheses	12
	Rationale for Research	12
II	METHOD	14
	Setting	14
	Subjects	16
	Design and Procedure	17
	Data Collection	18
	Measurement of the Independent Variables	18
	Health Locus of Control	18
	Knowledge of Sex and Contraceptive	20
	Measurement of the Dependent Variables	22
	Additional Data	23
III	RESULTS AND DISCUSSION	25
	Description of Sample	25
	Descriptive Findings Regarding Major Variables	28
	Health Locus of Control	28
	Knowledge of Sexuality and Contraception	29
	Effectiveness of Contraception	38
	Findings Regarding the Hypotheses	39
	Additional Findings	50
IV	SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	53
	REFERENCES	57
	APPENDICES	63
	Appendix A - Multidimensional Health Locus of Control Scale	63
	Appendix B - Sex Knowledge Questionnaire	65
	Appendix C - Contraceptive Knowledge and Use Survey	68

TABLE OF CONTENTS

PAGE

APPENDICES (continued)

Appendix D - County Public Health Division Client Intake Information 69
Appendix E - Introduction to Study - Client Consent Form 70
Appendix F - Measurement of Effectiveness of Contraceptive Use 71

ABSTRACT 74

LIST OF TABLES

TABLE		PAGE
1	Selected Characteristics of Study Sample of Clients from County Health Division Family Planning Clinic (N = 78)	27
2	Scores of Adolescents on Multidimensional Health Locus of Control Scales: Mean Scores, Standard Deviations and Intercorrelations (N = 78)	30
3	A Comparison of Percent of Correct Responses of Teenagers from Current Study and Reichelt and Werley Study (1975) to Statements on Contraception, Reproduction, Abortion, and Venereal Disease by Questionnaire Item	32
4	Matrix of Pearsonian Correlation Coefficients of Overall Effectiveness Score (EFF) to Reported General Use Effectiveness (GEF), Past Two Months' Effectiveness (PEF), Last Intercourse Effectiveness (LEF), and Pregnancy Status (PREG) of 78 Adolescents	40
5	Matrix of Pearsonian Correlation Coefficients of Sex Knowledge Test (SKT), Internal Locus of Control (IHLC), Chance Locus of Control (CHLC), Powerful Others Locus of Control (PHLC), Overall Contraceptive Effectiveness (Mean Score) (EFF), and Pregnancy Status (PREG)	42
6	Multiple Regression Analysis of Variables Relating to Contraceptive Effectiveness (EFF) (N = 78) . . .	47
7	Comparison of Selected Characteristics of Pregnant and Nonpregnant Adolescents in Present Sample (N = 78)	52

CHAPTER I

INTRODUCTION

Unwanted teenage pregnancy represents a major health problem in the United States. Although there has been a decline in the total national birth rate, the proportion of deliveries to adolescents, 11 to 18 years, increased from 17% in 1966 to 19% in 1975 (Hollingsworth & Kreutner, 1980). There were 1.1 million teenage pregnancies in 1978. Of these, 434,000 ended in abortion, 362,000 resulted in births conceived following marriage (Alan Guttmacher Institute, 1981).

Teenage pregnancy has unique medical, social, behavioral, psychological and educational consequences for these young women. Adolescent mothers are more likely to be adversely affected by a limited education, inadequate vocational training and a low income (Alan Guttmacher Institute, 1976). They are at greater medical risk and experience more complications of pregnancy than older women.

The fetus is also considered in great jeopardy. Adolescent pregnancy contributes disproportionally to the incidence of low birth weight of the fetus, to prematurity, and to fetal, neonatal and infant mortality rates. There is also a higher incidence of congenital malformations among these infants. Following birth, infants of adolescent mothers are at a higher risk of physical or mental neglect and handicaps (Alan Guttmacher Institute, 1976 & 1981; U.S. DHEW, 1979b).

In spite of the potential risks, the incidence of teenage premarital sexual intercourse has continued to increase. Studies by Sorenson (1973) and Zelnik and Kanter (1977, 1979) show that teenagers

of both sexes frequently engage in sexual activity. During the 1970's sexual activity among unwed teenage women living in metropolitan areas rose by 66%. The increase was most dramatic among whites, especially those aged 15-17, whose rate of sexual activity doubled (Alan Guttmacher Institute, 1981). Guttmacher has found 18% of boys and 6% of girls aged 13-14 have had intercourse. Nearly half of 15-17 year old males and one-third of females of similar age are sexually active.

Previously, age at first intercourse appeared to be related to race, socio-economic status and religious affiliation (Jessor & Jessor, 1975; Cvetkovich & Grote, 1978). More recently such differences are disappearing as premarital sexual activity increases among all sectors of the teenage population (Alan Guttmacher Institute, 1981).

Many reasons have been advanced for the increase in teenage intercourse and pregnancies, such as maladaptive modes of dealing with psychological problems, peer pressures to be sexually active, lack of knowledge of reproduction and contraception, and lack of knowledge about the consequences of acontraceptive coitus (Youngs, Neibly, Blake, Shipp, Stanley & King, 1977; Heisler & Friedman, 1980). Cowell (1973) and Miller (1973) each noted the avoidance of contraception by some teenagers for moral reasons and by others for hedonistic reasons; i.e., contraception would interfere with pleasure and spontaneity. Zabin & Clark (1981) found many adolescents didn't use contraceptives because they feared their parents would find out about the contraceptives. Evans, Selstad & Welcher (1976) found adolescents in their study did not use contraceptives because the teenagers thought they did not have intercourse frequently enough to become pregnant. Finally, lack of accessibility to birth control clinics has been seen as a barrier to

contraceptive use (Hollingsworth & Kreutner, 1980).

Among these reasons advanced for the increase in teenage pregnancy, lack of knowledge has perhaps received the most national attention. Sex education has been offered as a solution to the problem of teenage sexual activity and pregnancy. However, despite the fact that as of June 1980, 43 of the 50 states offered sex education as an option in public schools, an increase in teenage pregnancy has persisted (Kenny & Alexander, 1980). Why, then, is sex education not more effective in alleviating this problem? It is possible that sex education has not included specific birth control information necessary for effective use of contraceptive methods. However, evidence exists that many teenagers with accurate knowledge regarding sexuality and contraception still become pregnant (Crovitz & Hayes, 1979).

Perhaps the problem lies in the teenagers' lack of conviction they can control the situation of contraceptive use. This suggestion has some evidence to support it. Investigators (MacDonald, 1970; Lundy, 1972; Steinlauf, 1979) have reported that adults and teenagers with an internal locus of control, (i.e., the belief that events in one's life are contingent on one's own determining behavior) tend to be better contraceptive users than teenagers and adults with an external locus of control (i.e., the belief that events in one's life are determined by fate, chance or by other powerful individuals with whom one associates). Possibly the association between locus of control and contraceptive use is spurious. Externals tend to have less information on health issues than internals (Strickland, 1978), and possibly it may be their lack of knowledge which accounts for their lesser effectiveness at contraception, and not their externality

as such. The question remains: Given equal exposure to sex information and contraceptives, do internals and externals demonstrate equal use of and success with contraceptive methods?

Since little is known about the interrelations among knowledge, locus of control and effective contraceptive use, this research will attempt to increase understanding in this area. Specifically, the question will be asked: Controlling for knowledge of contraception, will teenagers with an external locus of control practice contraception less successfully than teenagers with an internal locus of control?

Review of the Literature

The following review will cover first the literature relating knowledge of contraception to teenage contraceptive use, and that literature relating health knowledge to locus of control. Next research concerning the relation of contraceptive use to locus of control will be discussed. Finally, the desirability of tailoring educational approaches to the learner's locus of control will be considered.

Relation of Knowledge of Contraception to Contraceptive Use

Most investigations into the relation of knowledge to contraceptive use have resulted in positive findings. Reichelt & Werley (1975) found that young clinic patients aged 13 through 19, if given instruction about various methods of birth control, were able to select and use the more effective methods. Rosen & Martindale (1976) proclaimed the value of sex information as a prerequisite to effective contraceptive use. Hollingsworth & Kreutner (1980) evaluated several sex education programs and reported encouraging outcomes. One Minnesota program showed a 56% reduction in the fertility rate of students during

the first three years of operation. This program involved an "intensive one-to-one, 'find-them-where-they-are' approach," for students in two high schools (p. 518). A program on human sexuality was conducted in six rural counties in Maryland and produced evidence of a 33% drop in fertility rate of women 15 to 19 years of age, from 84 births per 1000 in 1972 to 56 births per 1000 in 1975.

Guttmacher (1969) and Miller (1976) also obtained positive correlations between level of sex knowledge and effectiveness of contraceptive use. However, Guttmacher considered knowledge to be less important as an explanatory factor of contraceptive use than economic and ethnic factors, and Miller considered developmental factors to be of greater importance. Finally, Crovitz and Hayes (1979) obtained different results. They compared pregnant adolescents with sexually active but non-pregnant peers, and found no differences between the two groups on sexual knowledge. However, sex role attributes were related to contraceptive knowledge. Crovitz and Hayes (1979) disputed the value of education and of sex knowledge for effectiveness at contraception. It should be noted, however, that their study population was small (N = 37), and admittedly biased; whereas Guttmacher and Miller obtained their data from large samples.

Although evaluative studies of sex education programs frequently have almost always indicated some success, it is still true that many adolescents apparently fail to use contraceptive methods despite participation in such programs (Cvetkovich, 1975; Finkel & Finkel, 1975). Various reasons have been advanced to explain this fact. Perhaps the educational programs do not provide specific enough content to be useful for teenagers (Adolescent Health Care, 1979; Guttmacher

Institute, 1981). Perhaps programs do provide accurate and complete information but are not presented in a manner appropriate for teenagers. Alderman (1980) has evaluated different approaches to health education. She has written "it would be useful to know to what extent people link their own behaviors to the causes of disease or to states of wellness" (p. 23). This idea of causality is basic to locus of control, in that individuals with an internal locus of control believe they determine or cause events in their lives. Hence, it may be argued that the locus of control of an individual would determine that individual's ability to benefit or learn from educational intervention. A relationship between sex knowledge and the student's belief in his ability to utilize that knowledge could explain the contradictory results obtained to date about sex education and use of contraception. It would appear useful therefore to evaluate the relationship between sex knowledge and locus of control.

Relation of Health Knowledge to Locus of Control

As mentioned previously, locus of control refers to an individual's level of belief in his/her ability to control his/her life's events. Internal-external expectancies are derived from Rotter's social learning theory (Rotter, 1966). According to social learning theory the locus of control is an expectancy, not a motivational construct; thus locus of control is influenced by an individual's expectations. Rotter postulates that behavior occurs as a function of expectancy and reinforcement within a situation. Another factor affecting behavior is the value the individual places on the resultant reinforcing outcome of the behavior.

The tendency to seek information relevant to health is a function

both of the value an individual attaches to health, and the degree to which the individual expects the health information will help him/her maintain or improve his/her health. The limited studies available support the view that level of health knowledge and locus of control are related, with greater knowledge being associated with internality (Strickland, 1978). Thus, Seeman and Evans (1962) have shown that hospitalized tuberculosis patients with an internal orientation possessed significantly more knowledge of their disease than did their externally oriented counterparts. Again, Wallston, Maides & Wallston (1978) found that internals who value their health were more likely than externals to collect information about disease and health maintenance. Finally, Davis and Phares (1967) reported that internals were more active than externals in seeking information relevant to solution of future as well as present problems.

These studies have related locus of control to areas of health knowledge other than contraception. To the knowledge of the investigator no studies have specifically related locus of control to knowledge of contraception. However, it would seem logical to assume that internals would be more likely to seek knowledge on contraception as they have in these other areas.

It is commonly assumed that the more information a person has about a health related event, the greater the likelihood the person will take positive steps to ameliorate that health condition. Individuals appear to differ greatly in the extent to which they seek and utilize such information, based on their internal versus external health locus of control (Wallston, Maides & Wallston, 1976). In the next section, the relation of locus of control to actual use of

contraceptives (a preventative health behavior) will be examined.

Relation of Contraceptive Use to Locus of Control

For sexually active teenagers wishing to avoid unwanted pregnancy, use of effective contraception is a "preventive health measure" (U.S. DHEW, 1979b). This type of preventive health behavior has been shown to be correlated with an internal locus of control of the individual (Lundy, 1972; MacDonald, 1970; Steinlauf, 1979).

When Strickland (1978) reviewed studies of locus of control and health-related behaviors she concluded, "when faced with health problems (or potential health problems), internal individuals do appear to engage in more generally adaptive responses than externals. These range from engagement in preventive and precautionary health measures through appropriate remedial strategies when disease or disorder occur" (p. 1205). It may also be noted that Liverant and Scodel (1960) reported that internals showed a greater tendency toward self-regulation than externals. On this theoretical basis it may be predicted that internals, if sexually active and not desiring pregnancy, should use contraceptive methods to a greater extent than externals.

Several studies have specifically linked effective contraceptive use to an internal locus of control. First, Lundy (1972) supported his hypothesis that sexually active unmarried college students who reported using contraceptives manifest a greater internal locus of control, as measured by Rotter's (1966) Internal-External Scale. Second, MacDonald (1970) in a study involving 508 college undergraduates, supported the hypothesis that women with an internal locus of control practice birth control more than women with external locus

of control. Anonymous questionnaires were administered to the subjects to determine use of contraceptives and type of contraceptives used. Findings from that study suggest the possibility of a similar correlation for the teenage population. Third, Segal and DuCette (1973) found middle-class white high school females who became pregnant were more external than control subjects. However, with regard to the black lower-class group, the internally oriented teenage females tended to become pregnant more frequently than the externals. Fourth, Wallston & Wallston (1980, p. 29) from a review of locus of control studies concluded that "the most internal samples tend to be those exhibiting health behaviors: birth control use, abortion, smoking reduction." Finally, Steinlauf (1979) has recently found the effective practice of contraception to be positively associated with an internal locus of control, and with problem-solving ability. Her subjects were 155 single women, 15 to 26 years of age, from a Planned Parenthood clinic and an abortion clinic. Locus of control was measured by the Internal Control Scale (I) and the Chance Control Scale (C) developed by Levenson (1974). Problem-solving ability was measured by the Means-Ends Problem Solving (MEPS) test of Platt and Spivack (1975).

The incidence of unplanned pregnancies was greater among those with an external locus of control and less among those with internal orientation. Steinlauf also found that there were fewer unplanned pregnancies among those with greater problem-solving ability. In this latter finding her work accords with that of Davis and Phares (1967) who found a significant relationship between locus of control and problem-solving ability, with internals manifesting greater capability.

Interrelation of Knowledge, Locus of Control and Educational Approach

Understanding of the interrelations among locus of control, contraceptive effectiveness and sex knowledge should make it possible to improve educational programs about contraception for teenage women. Current research by Fisher and Dyer (1978) and Shepel and James (1973) suggests the need for a different educational approach for internals than for externals. Shepel and James (1973) demonstrated that internals perform better than externals in internally oriented learning situations, and externals perform better in externally oriented learning situations. Externally oriented situations involved teaching through demonstration and direct supervision. Internally oriented learning situations relied on individual motivation and self-direction without constant supervision.

Brandt (1975) reached a similar conclusion in evaluating educational devices to improve reading skills in internal and external students. Although Brandt admitted the need for further research to verify benefits to be derived from different approaches for internals and externals, he stressed the obvious implications of this finding for educators. Developing an internal and an external approach for sex education is one possible strategy suggested by that research.

Perhaps the failure to provide different types of instruction for internals and externals can explain the problems externals have had in accepting health practices which they have been taught. Arakelian (1980) concluded in a review of literature regarding locus of control that

> "persons with an internal locus of control are more successful than those with an external locus of control in initial mastery of health information, and that their learning is enhanced when health is highly valued and when information is presented in programs consistent with their preference for control and independence" (Arakelian, 1980, p. 29).

A preference for the manner of presentation indicates a relationship between locus of control and effectiveness of type of educational approach.

Although internals and externals do not necessarily differ in either intelligence or learning achievements, internals have been recognized as more motivated and better able to extract relevant information and utilize data for more effective problem solving. Knowing this could cue a nurse to the type of educational approach to be used with teenage clients.

In summary, this consideration of interrelations indicates that an individual's orientation to locus of control may affect the extent to which the individual seeks information and uses that information. With respect to the present study, this means that teenagers with an internal orientation may differ from teenagers with an external orientation in the extent to which they seek contraceptive information and then act in accordance with that information.

Statement of Problem

The preceding review of the literature suggests that persons engaging in preventive health behavior such as effective use of contraceptives tend to have an internal orientation with regard to locus of control. It is also clear that effective contraceptive use requires knowledge about the effective methods. The purpose of this study was twofold. First, the relationship between locus of control of sexually active teenage women and the effectiveness of their use of contraceptives was assessed. It was expected that teenage women oriented to internality would be more successful at contraception. Second, the

relationship between knowledge of contraception and the locus of control orientation of the clients was evaluated. It was anticipated that teenage women with an internal locus of control would have greater contraceptive knowledge.

If either of these possible correlations exists, the approach in teaching about contraceptive methods could be adjusted to meet the different styles of learning of internal versus external women.

Hypotheses

1. Sexually active teenage females with an internal locus of control show higher levels of knowledge of sex and contraception than those with an external locus of control.

2. Sexually active teenage females with an internal locus of control report effective use of contraceptives more frequently than those with an external locus of control.

3. When knowledge of sex and contraception is controlled, sexually active teenage females with an internal locus of control report effective use of contraceptives more frequently than those with an external locus of control.

Rationale for Research

Identification of the orientation to locus of control of sexually active teenage women may be useful for nursing intervention. First, it could assist the nurse in her educational approach to recognize the difference between internals and externals in their preference for the type of intervention. Externals may need more basic knowledge as their previous intake of information is usually limited.

A second benefit is the recognition of the need of different

types of contraceptives for externals and internals. Since externals tend to fail at planning ahead or anticipating their health needs, it may be difficult for externals to use interruptive or time-consuming methods such as foam, condoms or the diaphragm. Since internals tend to be more highly motivated they should use these methods more effectively.

A third implication from this research is the possibility of the nurse's teaching externals that they can control their use of contraceptives. MacDonald (1970) suggests training recognized externals to become internals. He recommends this not only as a possible but as a preferred method of dealing with the health needs of externals.

Therefore establishing a relationship between locus of control, contraceptive knowledge and effective use of contraceptives would open the door to two future intervention strategies. One would be to develop an educational approach appropriate for externally-oriented sexually active teenagers. The other strategy would involve teaching internality to externals, showing them their ability to control their health practices.

CHAPTER II

METHOD

Setting

This study was conducted at a county Family Planning Clinic in Oregon. The federally and county-funded Family Planning Program provides the following services:

1. Information on human reproduction, child spacing, fertility/infertility, sterility;
2. Contraceptives and other methods for prevention of unwanted pregnancy;
3. Assistance in obtaining voluntary sterilization;
4. Pregnancy testing and counseling;
5. Counseling regarding family planning; and
6. History and physical examination.

Family Planning Clinics were established to allow individuals accessibility to these services regardless of their level of income. Clients are charged for services on a sliding fee scale that is adjusted to the individual's income, family size and ability to pay. No one is refused service for inability to pay. Nationally, the majority of clients (54% in 1979), receiving Family Planning Services did not pay reflecting their lower socio-economic status.

The Family Planning Clinic now serves approximately 4,000 women between the ages of 13 and 45 annually. Approximately 1,800 teenagers used the facility in 1979.

The clinic is open Monday through Friday between 9:00 a.m. and 4:00 p.m. Three evening clinics are offered Monday, Tuesday and

Wednesday from 5:30 p.m. to 8:30 p.m. Clients attending the Family Planning Clinic receive appointments scheduled on the basis of the purpose of their visit. Appointments are offered for pregnancy testing on the following days:

Monday	-	9:00 - 11:00 a.m.
Tuesday	-	5:30 - 7:00 p.m.
Wednesday	-	9:00 - 10:45 a.m.
Thursday	-	1:30 - 3:30 p.m.
Friday	-	9:00 - 10:45 a.m.
		1:30 - 3:30 p.m.

As previously mentioned, clients are scheduled for appointments on the basis of the purpose of the appointment. Those requesting a visit for the purpose of obtaining contraceptives are required to have a complete physical examination at their first appointment. At this time the client is instructed regarding all the methods of effective contraception available. This instruction is provided by a clinic nurse, with the follow-up information from the nurse practitioner performing the client's examination. This one-to-one educational session is a required component for the client's participation in the clinic. The client must sign a contraceptive method consent form acknowledging that she is aware of all the methods and has chosen one most appropriate for her.

Clients suspecting pregnancy are scheduled for a pregnancy test with a clinic nurse. The nurse evaluates the client's history on the basis of type, if any, of contraceptive used, consistency of use of the method, length of elapsed time since last menstrual period, and any reported signs or symptoms of pregnancy. The nurse performs a pregnancy test if the above factors warrant it. If the test is positive, the patient is offered an examination by the nurse practitioner to confirm the results of the test. False positive and false negative

tests can be confirmed or evaluated on the basis of a pelvic examination by the nurse practitioner.

Subjects

A convenience sample was drawn, comprising all those adolescents meeting the criteria for inclusion in this study who scheduled pregnancy test appointments at the Family Planning Clinic from November 1, 1981, through December 31, 1981. For inclusion, the adolescent had to be at the time of visit from 13 through 19 years of age, sexually active prior to the visit and suspected pregnancy which was unplanned. The participants might be of any marital status.

These adolescents might either be new or previous clients of the clinic. Some individuals may have previously not attended this Family Planning Clinic for contraceptive advice and might be using an over-the-counter method of contraception (foam, condom, vaginal suppository) or no method at all. Others might have attended other Family Planning or Planned Parenthood Clinics, or obtained contraceptive information from private physicians, previous to scheduling this pregnancy test appointment.

Consecutive admissions to the clinic of clients with morning, afternoon and evening appointments were screened until 78 persons meeting all criteria of the study had participated in the study. Screening was performed by the clerk at the admission desk where all clients reported for their appointments. The clerk also obtained required consent forms for participation in the study.

Design and Procedure

The director of the County Health Division was contacted for permission to conduct this correlational ex post facto study. Teenage clients were asked to participate voluntarily in the study at the time of arrival for their appointment. Participants were informed that all information was confidential and that acceptance or refusal to participate would not affect services at the clinic.

Upon arrival for a scheduled appointment it is customary for the client to report to the clerk at the admission desk. The client then fills out an information intake sheet (see copy, Appendix D). In the present study, the clerk reviewed the intake sheet and then determined if the client satisfied the study criteria. If the client met the criteria the clerk then asked the client's cooperation in participating in the study. If the client agreed, she was given a copy of the consent form (Appendix E), the Multidimensional Health Locus of Control Scale (Appendix A), the Sex Knowledge Questionnaire (Appendix B), and the Contraceptive Knowledge and Use Survey (Appendix C). She was instructed to fill these out while she waited to be seen by the clinic nurse.

In counseling the participant, the clinic nurse determined whether this client had been sexually active and did not want to be pregnant. This information was noted on the back of the completed questionnaire which the clinic nurse collected. The nurse also recorded the result of the pregnancy test (positive or negative). If the test was negative, the nurse offered the client an appointment for retesting if pregnancy was still suspected.

Data Collection

By means of a questionnaire, each individual's orientation to locus of control was determined along with her knowledge of contraceptives. By means of the Contraceptive Knowledge and Use Survey, (Questionnaire #3) the client reported her choice and use of contraceptives.

Measurement of the Independent Variables

The independent variables in this ex post facto study were (1) the client's orientation to her health locus of control and (2) the level of sex knowledge as demonstrated on the sex knowledge test score.

Health Locus of Control

Locus of control represents a measure of the extent to which an individual believes events in his/her life are influenced by his or her own behavior. The Multidimensional Health Locus of Control Scales (MHLC) developed by Wallston et al. (1978) were used in this study. Copies of these scales are reproduced in Appendix A.

The MHLC scales were chosen since they were developed to refer specifically to a sense of control over health matters. Since contraceptive use is viewed as a preventive health measure against unwanted teenage pregnancy, (U.S. DHEW, 1979b) the health-related locus of control scale appeared appropriate for this research.

The MHLC scales developed by Wallston et al. measure three factors presumed to affect a sense of control over health. These factors are "internality," "powerful others," and "chance." Six items comprise each of these three scales. Each item is measured by a 6-point Likert format scale, ranging from strongly disagree (1) to strongly agree (6).

The score for each scale can range from 6 to 36 points. The higher the score the greater the individual's belief that his/her health is affected by one's own actions, by chance, or by the actions of powerful others.

The internality scale (Internal Health Locus of Control, IHLC), represents the extent to which one believes in his/her influence and control over his/her health. An example of the measure of internality on the scale is:

"If I get sick, it is my own behavior which determines how soon I will get well again."

A highly internal person would rate this statement with a score of 6.

The influence of powerful others (PHLC) refers to the extent one believes other people in his/her life are responsible for that individual's life. A person believing in powerful others would rate the following example with a 6-point score.

"Having regular contact with my physician is the best way for me to avoid illness."

The third factor, chance (CHLC), identifies the belief that chance, fate or luck is responsible for determining one's life. An example of chance on the scale is:

"No matter what I do, if I am going to get sick, I will get sick."

The PHLC and the CHLC represent a tendency toward a more external locus of control as opposed to the internal locus of control measured by internality, IHLC.

Wallston et al. (1980) reported internal consistency for the three scales with alpha reliabilities ranging from .67 to .77. Two equivalent forms (A and B) of the MHLC have been developed, each consisting

of three, 6-item scales, with the items using 6-point Likert-type response formats. Forms A and B demonstrated alpha reliabilities ranging from .83 to .86. The three MHLC scales (IHLC, PHLC and CHLC) are considered to be independent, especially in the IHLC and PHLC scales. The IHLC and CHLC scales are negatively correlated. The CHLC and PHLC scales are only moderately correlated in that "the 12-item versions correlate +.20" according to Wallston et al. (1980, p. 10).

The concurrent and discriminant validity of the MHLC scales were established by Wallston et al. (1980, p. 10) through comparisons of MHLC values with values obtained on Levenson's (1974) P and C scales. A significant correlation ($r = .60$) was found between the PHLC and Levenson's P scale, as well as between the CHLC and Levenson's C scale although no r value was given.

Regarding the construct validity of the MHLC, Wallston, et al. report "when health locus of control is conceived of as a dependent variable, the evidence for the validity of the measures appears greater than when the construct is used as a predictor of behavior," (Wallston et al., 1980, p. 57). The Wallstons await continued research results to determine the extent of the tool's validity.

Knowledge of Sex and Contraceptives

The Reichelt and Werley Sex Knowledge Questionnaire is used in this study to measure the amount of knowledge participants have regarding sexual activity and contraception. The 44-item questionnaire was designed for use by the layperson. The items have been worded so as to be easily understood by the adolescent yet avoids the use of any subcultural slang. According to Reichelt, "the questionnaire requires approximately 10 minutes to complete and has been used successfully

with respondents as young as 13 years of age," (Reichelt & Werley, 1975, p. 83).

A copy of the Sex Knowledge questionnaire is reproduced in Appendix B.

The first 2 items (questions 1 and 2) have multiple answers and are designed to elicit information about the source of the respondent's knowledge of sexuality. Questions 3 and 8 are attitudinal in nature and therefore are not measured as indices of sex and contraception knowledge. The remaining 40 items (questions 4 thru 44 excluding #8) constitute the sex knowledge test.

Twenty-five items in the questionnaire concern specific methods of contraception including the birth control pill, the intrauterine device (IUD), the diaphragm, the condom, spermicidal foam or jelly, withdrawal and the rhythm method. Five items cover knowledge of venereal disease while the remaining 10 items include such topics as menstruation, fertility and abortion.

The three-part response scale allows the scorer to distinguish between the number answered correctly, the number answered incorrectly and the number marked unknown. To score the tests in this research, the number of correct responses for items 4 thru 44, excluding #8 were used. A score of one point for each correct response is allowed. Scores can range from 0 (no correct response) to 40 (all 40 items answered correctly).

Content validity of the instrument was established by deriving items from available scientific literature, which were then reviewed by a panel of health professionals (Reichelt & Werley, 1975).

Reichelt & Werley (1975) alluded to testing the stability of

the tool through a test-retest procedure. However, they failed to report the reliability coefficient, if one was calculated. In a review of the tool, Reichelt reported the reliability could be established with little difficulty (Ward & Lindeman, 1978).

Measurement of the Dependent Variable

The dependent variable in this study is effectiveness of contraceptive use as measured by the scale developed by Howe (1980). This scale is comprised of items 11, 12, 13, 14, 15 and 16 of the Contraceptive Knowledge and Use Survey (see Appendix C). Howe's measure of overall Contraceptive Effectiveness (hereafter referred to as EFF) is composed of three subscales, assessing effectiveness of contraceptive use in three time frames. These are contraceptive use in general (GEF), use in the past two months (PEF), and use of contraceptives at last intercourse (LEF). Within each subscale a raw score was calculated by adding points for the contraceptive method used (range 0 to 3 points) to points for the frequency of use of contraception (range 1 to 3 points). Thus, for each subscale an individual received a raw score ranging from 1 to 6 (see Table 1, Appendix F for full details of the scoring). The 3 subscale scores are added and the total divided by 3. The resultant mean is the overall Contraceptive Effectiveness score (EFF). Values for the EFF range from 1 to 6.

An example of determining the EFF follows. An individual answering questions 11 and 12 reported using "foam and condom" (method value = 3 points) "once in awhile" (frequency value = 2 points). The raw score for use in general (GEF) equals 5. Responses to questions 13 and 14 regarding contraceptive use in the past two months reveal

"seldom" (frequency value = 1) use of "withdrawal" (method value = 1 point). This equals a value of 2 for PEF. The respondent's answers to questions 15 and 16 were that no contraceptive had been used (method = 0) at last act of intercourse (frequency = 1 point). The LEF equals 1. Overall Contraceptive Effectiveness for these responses equals a score of 2.67.

Howe's rationale for using a mean score, rather than a cumulative one, was that "missing data, (for instance, no intercourse in the past two months) did not penalize a subject with a falsely low contraceptive effectiveness score" (Howe, 1980, p. 100).

Howe comments that reliability of this tool

> "depends heavily upon the honesty of teenagers reporting their sexual activity. Self-report is the only access investigators have to this information and yet it is impossible to verify. For this reason, guaranteed confidentiality is of paramount importance in allowing adolescents to respond truthfully" (Howe, 1980, p. 101).

Efforts were taken in the present study to assure the participating CHD clients that confidentiality would be maintained. The consent form specifically stated that no identifying numbers or names would be on the questionnaires.

Additional Data

Demographic data were obtained from the Contraceptive Knowledge and Use Survey of birth, area of residence, and marital status. Information regarding socio-economic level was also obtained from the Contraceptive Knowledge and Use Survey which contains required information for all clients attending the Family Planning Clinic. Questions No. 1 through 7 elicit information regarding income level (see Appendix C). Questions No. 6 and 7 determine whether the client is

employed or in school. The occupation of the head of the household is asked. This information is necessary for evaluating socio-economic status according to Duncan's Socioeconomic Index.

To utilize the Duncan Socioeconomic Index the client's description of the occupation of the head of the household is translated into an occupational code by the researcher. This occupational title is converted into a pre-existing Duncan SEI (Socioeconomic Index) score. Validity of the Duncan SEI scale is reported to be highly stable over time ($r = .99$ from 1947-63) and across social systems (Miller, 1977, p. 214-215).

CHAPTER III

RESULTS AND DISCUSSION

Description of Sample

During the period from November 1, 1981, to January 1, 1982, 84 clients at the County Health Department met the criteria for inclusion in this study. Six declined to participate. The other 78 completed the questionnaire, representing a response rate of 93%.

Selected characteristics of the respondents are presented in Table 1. The mean age was 17.4 years, with only 9% of the sample 15 years of age. There were no 13 or 14-year-old clients in the sample. This might be due to a lack of accessibility of this clinic for adolescents without a means of transportation. Clients travel as far as 40 to 50 miles by car to reach this clinic. Another possible reason for the absence of 13-14 year olds may be a lower rate of sexual activity in that age group. Furthermore, Zabin and Clark (1981, p. 205) reported in their study of 1200 teenagers at 31 urban family planning clinics that "few whites arrive at the clinic before they are 16, however young they were at first coitus." The mean age of adolescents in their national study was 17.4 years which is identical with the mean age for this entirely Caucasian family planning clinic sample.

In their study, Zabin and Clark found that the most common cause for initiating a family planning clinic visit was suspicion of pregnancy. In the present study only clients suspecting pregnancy were interviewed. Of the 78 participants, 29 (or 37%) were indeed pregnant. Zabin and Clark do not offer a percentage value but state

that a "majority" of their participants suspecting pregnancy were pregnant. Cost of the vist, difficulty of access to the clinic, and the teenager's belief she wasn't having sex often enough to get pregnant are some reasons offered by Zabin's sample for their delay in attending the clinic.

Thirty-five percent of the respondents in this study were currently in school (junior high, high school or college), and 65% were high school graduates, while 38% (N = 30) had dropped out of high school. The percentage of high school drop-outs appears large, especially when compared to the 6.7% reported by Zabin and Clark (1981) for their national sample.

Socioeconomic status was measured by the Duncan-Reiss Socio-economic Index, and calculated on the basis of the occupation of the mother, father, or husband of the client, whichever was highest. Scores ranged from very low (value of 2) to very high (value of 93). The mean value of 27.6 approximates scores assigned to such occupational groups as craftsmen, foremen and kindred workers, as well as auto mechanics, chainmen, rodmen and surveyors. Many occupations were represented, from unskilled to professional, but the most frequently mentioned were semi-skilled.

Almost 30% of the sample population was currently employed while 70% was not. The Oregon Governor's Commission on Youth (1980) states "half (50%) of Oregon's teenagers have jobs." The respondents in this study may present a lower employment rate because the respondents are all female and/or because they reside in smaller rural towns not offering employment for their age group. Still another reason may be the deepening economic recession in Oregon since 1980.

TABLE I

Selected Characteristics of Study Sample of Clients from County Health Division Family Planning Clinic (N = 78)

Characteristics	Number	Percent
Age (years)		
15	7	9.0%
16	16	20.5
17	16	20.5
18	17	21.8
19	22	28.2
Mean	17.4	--
Attending School		
Yes	27	34.6%
No	51	65.4
Education (years completed)		
- 8	4	5.1%
9	11	14.1
10	24	30.8
11	12	15.4
12	22	28.2
13+	5	6.4
Mean Years	10.7	--
Socioeconomic Status [a]		
0 - 19	42	53.8%
20 - 39	17	21.8
40 - 59	14	18.0
60 - 79	4	5.1
80 - 99	1	1.3
Mean Score	27.6	--
Employment		
Yes	23	29.5%
No	55	70.5
Marital Status		
Single, Divorced, Never Married	64	82.1%
Married	14	17.9
Pregnant		
Yes	29	37.2%
No	49	62.8

[a] Score on the Duncan-Reiss Socioeconomic Status Index (1961, reproduced in Miller, 1977).

Eighteen percent of the teenagers at time of their visit were married, while the majority (82%) were single (this includes divorced, widowed and unmarried girls living with their partners). In summary, the sample may be described as comprised predominately of girls from low-income families, often with a rural background. Because of the biased nature of this sample, the results of this study should probably not be generalized to adolescents in more urban areas or those of higher class status.

Descriptive Findings Regarding Major Variables

Health Locus of Control

The Multidimensional Health Locus of Control Scales (MHLC) were administered to each client, and three scores were derived measuring the dimensions of "internality" (IHLC), "powerful others" (PHLC) and "chance" (CHLC). The first of these, "internality", refers to the extent to which an individual believes he or she is in control of his or her health. As may be seen from Table 2, scores of the adolescents ranged from 15 to 36, clustering for the most part between 25 and 31. The mean score of 27.5 indicates a tendency toward a moderate to high belief in internality. Wallston et al. (1978) have provided no norms for adolescent girls, but did report a mean IHLC score of 25.1 for a heterogeneous sample of 115 persons of both sexes, contacted at an airport. Guske (1980) obtained a mean of 27.5, almost identical to that found in the present investigation, for a sample of young mothers (mean age of 27.5 years) enrolled in the Kaiser Health Program of Portland.

The second dimension (the PHLC) is the extent to which "powerful

others" are presumed by the individual to control his or her health. The mean score obtained on this dimension was 18.6, and the range was 6 to 32. Apparently these adolescents did not believe others controlled their health to any considerable degree. The score is lower than the mean of 19.9 reported by the Wallstons (1978) but somewhat higher than the mean of 15.4 reported by Guske for her older sample. With regard to the third dimension, the extent to which fate or chance determines health (CHLC), the mean score for the current sample was 17.2, greater both than the values reported by Guske (15.5) and by the Wallstons (15.6). In that 21 represents the midpoints of the scales, it is clear that these teenagers subscribed only slightly to the view that either powerful others or chance affect their health.

Table 2 also lists the correlation coefficients for the three pairs of scales. The coefficient of .44 between the PHLC and CHLC scores is significant ($p < .001$) and suggests, as might be expected, that a belief in the ability of powerful others to control one's health is related to the belief that chance can also affect health. It may also be noted that the correlation between the IHLC and CHLC scores was positive ($r = .19$), rather than negative as anticipated. However, this relation was not statistically significant by a two-tailed test. Both this finding and the absence of high correlations among the dimensions support the contention of the Wallstons that the dimensions are distinct and independent.

Knowledge of Sexuality and Contraception

The Reichelt and Werley (1975) Sex Knowledge Test (SKT) was used to measure the amount of knowledge the adolescent clients had about sexuality, contraceptives and reproduction. The test was administered

TABLE 2

Scores of Adolescents on Multidimensional Health Locus of Control Scales: Mean Scores, Standard Deviations and Intercorrelations (N = 78)

	Mean Score	S.D.	Range	Intercorrelations (r) PHLC	CHLC
Internality (IHLC)	28.20	7.45	15 - 36	.19	.07
Powerful Others (PHLC)	18.62	5.54	6 - 32		.44 *
Chance (CHLC)	17.23	5.50	8 - 34		

* p. < .001

to all adolescents prior to their visit with the clinic nurse. Each teenager received a score calculated by summing the number of correct answers. Scores ranged from 11 to 39 out of a possible total of 40 points. The mean score of 27.0 shows a moderate level of knowledge in that the average adolescent answered 67% of the 40 questions correctly. Marcy (1981) obtained almost an identical mean score (26.5) for adolescents at Kaiser OB-GYN clinics in Portland.

Less than half of this adolescent population replied affirmatively to item #2 of the SKT questionnaire stating "I don't know as much as I'd like to know about birth control." In contrast, Marcy (1981), Wagner (1980) and Sherriffs and Dezelsky (1979) reported that a majority of their adolescent subjects voiced a need for more information.

Table 3 presents the percentages of correct responses to the individual items on the SKT, for the present sample and for the sample studied in 1973 by Reichelt and Werley (1975). It may be seen that 28 items were answered correctly by a larger proportion of this sample than by the sample of Reichelt and Werley (1975). This means the present group of adolescent was significantly more knowledgeable (Signs Test, $p < .05$). One explanation for the difference in results may be the increased availability of sex related information during the past 10 years. A second explanation may lie in the fact that the mean age of the current study sample (17.4) is higher than that of Reichelt and Werley's sample (16.3). The only other major difference in demographic characteristics of the two samples is that the current sample was composed entirely of white females, while Reichelt and Werley's sample was 30% Black, and 12% male. The difference in the level of knowledge may

TABLE 3

A Comparison of Percent of Correct Responses of Teenagers from Current Study and Reichelt and Werley Study (1975) to Statements on Contraception, Reproduction, Abortion, and Venereal Disease by Questionnaire Item.

Questionnaire Item	Percent of Correct Responses by Study	
	Current Study (1981) N = 78	Reichelt & Werley (1975) N = 1,190
Misc. Methods and Reproduction:		
4. Rhythm is a highly effective method of birth control (F)	59%	49%
5. A girl can get pregnant the first time she has intercourse (T)	91	76
6. Douching after intercourse is a highly effective birth control method (F)	86	58
7. Sperm can live in the female's reproductive system for about 72 hours (three days) (T)	67	43
9. If a woman does not have an orgasm (climax) during intercourse, she can't become pregnant (F)	79	70
10. Withdrawal (pulling out) is a highly effective birth control method (F)	79	61
Venereal Disease:		
12. Many cases of VD are caught by contact with toilet seats, drinking fountains and swimming pools (F)	65	73
13. If the symptoms of VD disappear by themselves, no treatment is needed (F)	96	87
14. Once you've had VD, you can't get it again (F)	88	75

Questionnaire Item	Percent of Correct Responses by Study: Current Study (1981) N = 78	Reichelt & Werley (1975) N = 1,190
15. VD is not really dangerous to your health (F)	94%	91%
16. VD can be treated in Oregon without parental consent (T)	62	68
Menstruation (monthly period):		
17. Menstruation (monthly period) is a clearing of the uterus to prepare again for possible pregnancy (T)	74	74
18. A woman's fertile time (when she is most likely to become pregnant) covers the middle of the interval between her menstrual periods (T)	64	64
The Birth Control Pill:		
19. The pill must be stopped every year for three months (F)	68	32
20. The pill is generally dangerous to use (F)	59	65
21. The pill may be taken along with other medications without decreasing its effectiveness (T)	21	31
22. The pill may be taken by a girl who uses alcohol and/or drugs (T)	40	33
23. The pill may not be taken if the woman has a history of certain illnesses (T)	81	39
24. The pill is the most effective method of birth control (T)	72	72
The Diaphragm:		
25. The diaphragm must be worn at all times (F)	71	40

Questionnaire Item	Percent of Correct Responses by Study: Current Study (1981) N = 78	Reichelt & Werley (1975) N = 1,190
26. A diaphragm should be used only after having been fitted for it by a doctor (T)	81%	55%
27. The effectiveness of the diaphragm is increased when used with a cream or jelly (T)	56	34
28. The diaphragm cannot be felt by either the man or woman when properly in place (T)	64	44
The Condom:		
29. Using a rubber can help prevent the spread of venereal disease (T)	78	66
30. A rubber should be tested before use (T)	53	55
31. Rubbers break easily (F)	26	19
32. The rubber should be held around the base of the man's penis when withdrawn (T)	68	48
IUD's:		
33. The IUD is inserted before each act of intercourse (making love) (F)	62	39
34. The IUD cannot be felt by the man or woman during intercourse (T)	55	37
35. The IUD is the second most effective method of birth control (T)	49	29
36. The IUD usually works best if the uterus (womb) has been stretched by a previous pregnancy (T)	27	20
Foams, Creams & Jellies:		
37. They should be inserted just before each intercourse (T)	67	37
38. They work by killing sperm (T)	78	63

Table 3 (Cont'd)

Questionnaire Item	Percent of Correct Responses by Study: Current Study (1981) N = 78	Reichelt & Werley (1975) N = 1,190
39. They can be bought without a prescription in any drugstore (T)	60%	67%
40. When used with a rubber, they are a highly effective birth control method (T)	72	41
41. They should be washed out with a douche immediately after intercourse (F)	58	16
Abortion:		
42. An abortion can be done safely and easily by a doctor during the first 12 weeks of pregnancy (T)	73	81
43. Having an abortion will make the woman sterile (unable to have children in the future) (F)	86	87
44. Anyone can tell if a girl has had an abortion (F)	95	85

Correct answer to item in table is shown in parentheses following each statement. T = True; F = False.

be in part related to these demographic differences; however, the greater availability of and exposure to sex and contraceptive information in schools and the media is seen as the major reason for the difference.

It is apparent from examining the respondents' knowledge regarding withdrawal as a method that the SKT is not a valuable predictor of how well adolescents apply the knowledge they may possess. Of the 10 respondents specifying withdrawal was the method generally used, 9 identified it as their only method. Eight of these 10 respondents answered item 10 of the SKT correctly that withdrawal is not a highly effective method of birth control while only 2 of the 10 stated they believed it to be highly effective. Goldsmith et al. (1972) found withdrawal to be used at one time or another by almost all their subjects. The authors suggested its frequent use may be a reflection of "fatalistic attitudes about methods, or it may reflect genuine ignorance accompanied by a lack of imagination" (p. 34). Zabin and Clark (1981) also speculated that adolescents may feel "less effective" contraceptives are good enough for them because of their relatively infrequent coitus and/or because they believe that they are less likely to get pregnant because of their age. As might be anticipated, in the present study 5 of the 10 respondents who reported using withdrawal as their method were pregnant.

A common nonprescription method of birth control used by this adolescent population was the condom. Although only 9 respondents identified it as their usual method, 41 teenagers stated it was their second choice and had used it as a method. Of the items on the SKT regarding condoms, item 31 ("rubbers break easily") was missed most

often by the entire sample population. Seventy-four percent of the respondents answered incorrectly that condoms do break easily. This incorrect belief may reduce the general use of condoms which are a safe and effective method of contraception if used properly (Hatcher, Stewart, Stewart, Stratton & Wright, 1978).

The birth control pill was the most frequent reported method of contraception, with 60% of the respondents claiming it was their usual method. The items missed most frequently regarding the pill are related to how the pill should be taken or how it works physiologically. Items 21 and 22 state the pill may be taken while the client is using other medications, drugs or alcohol. These statements are true. However, many clients are unaware of these facts as is apparent from the 38% and 40% correct response rates.

Fifty-eight percent of the respondents answered item 18 correctly, stating when a woman's fertile period occurs in the menstrual cycle. In addition 59% of the sample recognized rhythm is not an effective method of birth control (item 4).

Overall it can be noted the teenagers in this study sample were fairly well informed regarding such methods as the IUD, condom, diaphragm, spermicidal foams and jellies and the birth control pill. They displayed accurate knowledge regarding abortion and venereal disease as well. It is enlightening to note that 62% of the sample recognized they could obtain VD treatment without parental permission in Oregon. There were only 5 items which less than 50% of the respondents answered correctly. As stated previously, these responses are better overall than the results obtained by Reichelt and Werley in 1973.

Effectiveness of Contraception

Contraceptive effectiveness was measured by a scale evaluating both the type of method used and reported frequency of use. These factors were evaluated in three time frames, use in general, use in the last two months and use at last intercourse. For each teenager a score was calculated for each time reference and a mean score obtained from these 3 scores to represent Overall Effectiveness (EFF) (see Appendix E for scoring details). The possible scores ranged from 1 to 6; actual mean scores ranged from 1 to 6. Scores clustered at the values of 2 and 6. Twenty-five (32%) of the respondents obtained a mean score of 6. This indicates they reported using a highly effective method such as the birth control pill, IUD, diaphragm or foam and condom "always" or "most of the time". Twelve (15%) respondents obtained a mean score value of 2. This value reflects "seldom" use of an ineffective method such as withdrawal, douche or rhythm method, or no use of contraceptives.

The reported effectiveness was not significantly correlated with the age ($r = .08$, n.s.), number of years of school ($r = .10$, n.s.), or the socioeconomic status ($r = -.01$, n.s.) of the subjects. Similarly, Howe (1980) found that age and socioeconomic status were not associated with contraceptive effectiveness for her heterogenous sample of 95 adolescents, aged 14-18 years.

In contrast to the findings regarding age, Zelnik and Kantner (1977) found an increase in reported use of contraception at last act of intercourse by female adolescents as their age increased from 13 through 19 years. This contrast may be due to the fact that Zelnik and Kantner's study included 13 and 14-year-olds and also Blacks.

The school district these adolescents reside in provides sex education courses including demonstrated use of contraceptives for high school sophomores, juniors and seniors.

The overall contraceptive Effectiveness scores (EFF) did correlate significantly ($r = .76$, $p < .001$) with the subjects' responses to item 8 of the Contraceptive Knowledge and Use Survey which asked whether the client was "currently using a method of birth control." This provides some indication of the consistency with which the teenagers responded to the questions on the use of birth control. The overall contraceptive Effectiveness score is also significantly correlated to each of the 3 subscores obtained for the three time reference periods (see Table 4). This fact indicates that the measure of effectiveness is internally consistent, and therefore reliable.

However, the validity of the overall Effectiveness measure (EFF) may be challenged. When pregnancy status was correlated with the EFF score, the coefficient obtained was only -.22. Although statistically significant, the strength of the relationship is not large and predicts only 5% of the variance.

Findings Regarding the Hypotheses

Hypothesis 1 - Sexually active teenage females with an internal locus of control show higher levels of knowledge of sex and contraception than those with an external locus of control.

The amount of knowledge measured by the SKT did not correlate significantly with Chance (CHLC) or Powerful Others (PHLC) scales of the Multidimensional Health Locus of Control Scales. The correlation coefficients were negative, as predicted, ($r = -.18$ and $-.16$ respectively)

TABLE 4

Matrix of Pearsonian Correlation Coefficients of Overall Effectiveness Score (EFF), Reported General Use Effectiveness (GEF), Past Two Months' Effectiveness (PEF), Last Intercourse Effectiveness (LEF), and Pregnancy Status (PREG) of 78 Adolescents.

Measure	Correlation of Specific Measure With			
	GEF	PEF	LEF	PREG
EFF	.88 *	.95 *	.93 *	-.22 *
GEF	---	.80 *	.71 *	-.15
PEF		---	.83 *	-.30 *
LEF			---	-.14
PREG				---

* $p < .05$

but were not strong enough to attain statistical significance. The correlation of the SKT with Internality (IHLC) was not significant (-.21). Note this correlation is in a direction opposite to that predicted, indicating that those with less Internality scored higher on the SKT. There is, therefore, no support for Hypothesis 1 (see Table 5).

These findings contradict findings of other studies regarding health-related issues and Internality. Strickland (1978), Seeman and Evans (1962), and Wallston et al. (1978) have all supported the propositions that internally oriented individuals are more likely to seek information regarding their health, and to demonstrate a higher level of knowledge regarding their health. Several factors may contribute to the discrepancy among these findings. First, internals are reported to seek information and practice health-related behavior based on their expectations of the outcome of the behavior. Sexually active adolescents who plan to finish high school and attend college would be expected to seek contraceptive knowledge to avoid pregnancy which could alter such plans. A majority of this population, however, was of a lower socioeconomic stratum and 38% were high school dropouts. Therefore, even if they were oriented to Internality, they might not value the avoidance of unplanned pregnancy as much as their college bound counterparts.

Second, it is possible that the same principles do not govern the search for knowledge about health problems such as tuberculosis, smoking and blood pressure as govern the search for contraceptive knowledge. It may be more socially acceptable to request information on hypertension than on contraceptives, especially among an adolescent population.

TABLE 5

Matrix of Pearsonian Correlation Coefficients of Sex Knowledge Test (SKT), Internal Locus of Control (IHLC), Chance Locus of Control (CHLC), Powerful Others Locus of Control (PHLC), Overall Contraceptive Effectiveness (Mean Score) (EFF), and Pregnancy Status (PREG).

Measure	Correlation of Measure With					
	SKT	IHLC	CHLC	PHLC	EFF	PREG
SKT	---	-.21	-.18	-.16	.34 *	-.31 *
IHLC		---	.07	.20 *	-.04	.79 *
CHLC			---	.44 *	-.11	.14
PHLC				---	-.19	.26 *
EFF					---	-.22 *
PREG						---

* $p < .05$

Third, the failure to support the hypothesis in this instance may be a consequence of the particular tools selected to measure knowledge and internality. Thus, the SKT is not comprehensive in its coverage of techniques of use specific to each birth control method. For example, there are no items concerning the correct day to begin taking birth control pills following menstruation. The SKT does not address the issue of how long a woman must take the BCP before she is "protected" from pregnancy. The SKT omits the critical question of how to catch up with missed or forgotten birth control pills. Questions about these issues arose frequently among the clients attending this clinic, according to a Women's Health Care Nurse Practitioner working there. Other crucial questions related to technique were omitted such as: "How long must a diaphragm remain in place after intercourse?" and "How soon before intercourse should contraceptive vaginal foams, creams or jellies be applied?" Persons using these methods often do not realize that the diaphragm needs to remain in place after use, and that foams and jellies may melt if placed in the vagina more than 20 minutes prior to intercourse. Omissions of this type limit the adequacy of the SKT as an instrument for measuring pertinent knowledge.

There are also limitations of the IHLC as an instrument for measuring Internality. A recent review of the Locus of Control literature by Lowery (1981) reveals that such scales have frequently failed to be predictive of the dependent variables studied in many nursing investigations. She comments, "Clearly there are limitations to the predictive power of the construct," (p. 294).

Hypothesis 2 - Sexually active teenage females with an internal locus of control report effective use of contraceptives more frequently than those with an external locus of control.

The correlation coefficients obtained between Effectiveness and Internality (r = -.04), Chance (r = -.11) and Powerful Others (r = -.19) do not support Hypothesis 2, (see Table 5). There is no relation between Internality (IHLC) and Effectiveness (EFF). The strongest correlation between EFF and PHLC (r = -.19) approaches but does not attain significance. These findings are contrary to results obtained by MacDonald (1970), Lundy (1972), Segal and DuCette (1973) and Steinlauf (1979). One explanation for the difference in the results obtained may be the variety of tools used.

As an example, none of the aforementioned studies utilized the Multidimensional Health Locus of Control Scale (Wallston, et al., 1978) which was employed in the current study. MacDonald, Lundy, and Segal and DuCette used the Rotter I-E Scale (Rotter, 1966). Steinlauf used the Levenson (1974) Internal and Chance scales. The differences among the scales may contribute to the discrepant findings of the studies.

Another variable that was evaluated by means of different criteria is Contraceptive Effectiveness. In the current study the tool employed measured the type of contraceptive used and reported frequency of use. In previous studies Segal and DuCette (1973) and Steinlauf (1979) counted the number of unplanned pregnancies to determine if effective contraception had been attained. Lundy (1972) and MacDonald (1970) measured Effectiveness based on self-report from the subjects per anonymous questionnaires. Subjects answered whether they used birth control and named the types of contraceptive. The investigators of

these previous studies failed to mention tests of the validity of their Effectiveness measures. Possible limitations of the validity of Howe's (1980) tool have been discussed previously.

It may not be the limitations of the tools used in these different studies that caused discrepant results. A second explanation may be the biased nature of the current study population. All subjects in this study came into the clinic suspecting/fearing unwanted pregnancy. Lundy and MacDonald utilized college undergraduate women in their studies. Segal and DuCette questioned middle to lower-class high school students while Steinlauf interviewed women from a Planned Parenthood Clinic and an abortion clinic. It is possible the present study population did not adequately represent a community population of sexually active teenage women and as such might not replicate previous study results.

It is important to consider that the relationship between locus of control and contraceptive use is not a significant one and as such may be overshadowed by other factors. Studies (Goldsmith et al., 1972, Zabin & Clark, 1981) indicate the sexually active adolescent may deny her sexual desires, therefore avoiding contraception. By not planning ahead for anticipated or desired sexual intercourse the adolescent avoids acknowledging her sexual desires. Goldsmith et al. (1972) also elicited the presence of an ambivalent wish for pregnancy in many sexually active teens denying desired pregnancy. They concluded that the adolescents' attitude of acceptance about her own sexuality was a more important correlate for determining contraceptive use than such factors as sex education, sex knowledge or religion.

Hypothesis 3 - When knowledge of sex and contraception is controlled, sexually active teenage females with an internal locus of control report effective use of contraceptives more frequently than those with an external locus of control.

A stepwise multiple regression analysis was conducted to determine the relative importance of sex knowledge, and locus of control as determinants of contraceptive effectiveness. In that analysis, the SKT emerged as the most powerful predictor, explaining 11% of the variance in Effectiveness (see Table 6). The Powerful Others subscale (PHLC) emerged next, and the Internality subscale (IHLC), third. These latter measures added very little to the explanation (2%). The Chance subscale (CHLC) did not even enter the equation. It must be concluded that sex knowledge was of some value in accounting for contraceptive effectiveness, but locus-of-control was virtually useless.

Data of more direct relevance to the third hypothesis were provided by the regression analysis. At step 1, after Sex Knowledge had entered the equation, the partial correlations of Internality (IHLC) with Effectiveness was .03, of Powerful Others (PHLC) with Effectiveness was -.05, and of Chance (CHLC) with Effectiveness was -.14. None of these partial correlations are significant. It must be concluded that, when knowledge of sex and contraception is controlled, females oriented to internality do not use contraceptives more effectively than those oriented to externality. Hence, Hypothesis 3 is not supported.

The analysis showed that knowledge of contraception was a factor of some importance for contraceptive effectiveness. However, its effect was not very strong. This finding leads to the same conclusion reached by previous investigators, namely, that adolescents may not

TABLE 6

Multiple Regression Analysis of Variables Relating to Contraceptive Effectiveness (EFF) (N = 78)

Variable	Simple r	Multiple R	R^2
Sex Knowledge (SKT)	.34	.34	.11
Powerful Others (PHLC)	-.19	.36	.13
Internality (IHLC)	-.04	.37	.13

$F = 3.84$, $p < .01$

translate their information into consistent and effective contraceptive practice (Evans et al., 1976; Goldsmith et al., 1972; Wagner, 1980). Why this failure occurs was the question that originally led to this study, and it was hypothesized that the interaction of locus of control with knowledge might hold the key to the answer. Apparently it did not. Internality and externality were quite unimportant as determinants of the contraceptive effectiveness of the present sample. It is possible, of course, to suspect the finding, and to attribute the failure to find the hypothesized relationship to flaws in method. Possibly the fault lay in the instrument chosen to measure the construct of locus of control. The limitations of the instrument have been discussed earlier. Possibly the fault lay in the nature of the sample, which consisted entirely of adolescent girls suspecting pregnancy. Indeed internality might be found to be associated with contraceptive effectiveness in a more representative sample of sexually active teenagers which included girls with no suspicion of contraceptive failure. Finally, the failure to confirm the hypothesis may lie in the theoretical formulation itself. It is possible that locus of control is simply not a variable relevant to behaviors in such emotionally laden areas as sexuality.

If knowledge is of limited utility in explaining contraceptive effectiveness and locus of control is of still less significance, what are the factors determining contraceptive success and failure? Among the variables suggested in the literature is the adolescents' fear that parents will learn of their sexual activity if they seek contraceptives (Zabin & Clark, 1981; Goldsmith et al., 1972). Other factors include the tendency of adolescents to deny their sexuality

(Goldsmith et al., 1972) and the lack of communication of adolescents with parents regarding sexuality (Wagner, 1980). Sexual behavior may be a means of gaining peer approval (Heisler & Friedman, 1980). The educational aspirations of the adolescent and age at first intercourse have been found to affect use of contraceptives (Herold & Sampson, 1980). Zabin and Clark (1981) claimed that many respondents in their study lamely stated "I just didn't get around to it" when asked why they didn't come to a clinic earlier. They interpreted this as "reflecting procrastination, and perhaps their ambivalence about contraception and clinics as well" (p. 205).

These factors may have influenced the current study sample. None of the extraneous factors were measured or accounted for in this study; however, their relevance has been reported in other adolescent study populations in recent years and should be considered as possible influences on the current population (Goldsmith et al., 1972, Evans et al., 1976).

Additional Findings

The data for this study were gathered from adolescents prior to the determination of the results of their pregnancy tests. The analysis to this point has dealt only with those data. However, insofar as information later became available regarding the pregnancy status of the adolescents, it was decided to conduct another test of the second and third hypotheses, using pregnancy status as the measure of contraceptive success or failure, in place of Howe's Effectiveness scale.

Twenty-nine adolescents received positive pregnancy tests, confirmed by physical examinations. These 29 girls did not differ from the 49 nonpregnant girls in age (the mean age was 17.4 years for both groups), nor did they differ significantly in percentage of high school dropouts (35% versus 41%). The two groups were also similar with respect to contraceptive and sexual knowledge as measured by the Sex Knowledge Test (see Table 7).

The two groups differ significantly in their EFF scores. Mean scores on that scale were 4.5 for the nonpregnant group, and 3.2 for the pregnant group. These findings are in the expected direction, since lower scores on the EFF indicate a greater risk of pregnancy.

When the scores of the two groups were compared on the Multidimensional Health Locus of Control Scales, the results were startling. Pregnant adolescents differed significantly from nonpregnant adolescents on the dimensions of Internality and Chance. However, it was the nonpregnant group which obtained the higher mean score on Chance (18.0 versus 15.5). Equally puzzling was the high Internality score obtained by the pregnant group. In short, it was the internals who were significantly more likely to be pregnant than the externals.

Hypothesis 2 is not upheld by these data. Neither is Hypothesis 3, since the level of knowledge for the two groups was practically identical.

This finding of a negative relationship between internality and contraceptive success runs counter to all reports in the literature for white girls. A similar finding has been reported by Segal and DuCette (1973) for Black lower-class girls. Segal and DuCette attempted to explain their peculiar finding on the basis of the cultural values and expectations of Blacks regarding pregnancy and motherhood. However, their arguments cannot explain why the externals in their Black lower-class sample were more effective at contraception than the internals, since externals presumably share the prevalent cultural values and expectations.

Returning to the present research, no ready explanation is available for the finding of an inverse relationship between internality and pregnancy status. Quite possibly, this finding is a result of the vagaries of sampling. The investigator is inclined to believe that such a finding does not reflect reality, but that instead, there is simply no systematic relationship between locus of control and contraceptive effectiveness for adolescents of lower socioeconomic status, who suspect contraceptive failure. Perhaps locus of control is a factor of relevance only for middle class adolescents. Perhaps locus of control is not salient in the case of adolescents who suspect pregnancy, but might be predictive of contraceptive success in a broader more representative sample.

TABLE 7

Comparison of Selected Characteristics of Pregnant and Nonpregnant Adolescents in Present Sample (N = 78)

Characteristic	Nonpregnant Adolescents N = 49	Pregnant Adolescents N = 29	Test of Significance
Age			
Mean Score	17.4	17.4	t=.06
Standard Deviation	1.4	1.3	
High School Dropouts			
Yes	20	10	χ^2 = .33
No	29	19	
Contraceptive Effectiveness			
Mean Score	4.5	3.2	t=3.27 *
Standard Deviation	1.88	1.5	
Sex Knowledge Test			
Mean Score	26.7	27.5	t=.74
Standard Deviation	6.67	6.32	
Internality (IHLC)			
Mean Score	26.7	28.4	t=2.02 *
Standard Deviation	4.1	4.4	
Chance (CHLC)			
Mean Score	18.0	15.5	t=2.29 *
Standard Deviation	5.6	4.2	
Powerful Others (PHLC)			
Mean Score	17.7	19.5	t=1.21
Standard Deviation	6.6	5.9	

* $p < .05$

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem of unwanted teenage pregnancy is a crucial social issue with potential health and social hazards for the mother and infant. Since family planning clinics and other resources have been available to sexually active adolescents over the past decade, it is evident that some adolescents have not sought or utilized contraception, even while stating they did not desire pregnancy. The purpose of this study was to explore the relationships among knowledge of contraception, locus of control and the effectiveness of contraceptives used by sexually active teenage women.

This study evaluated the reported contraceptive practice of 78 adolescent females, 15 to 17 years of age, attending a family planning clinic for pregnancy testing. All subjects had been sexually active prior to the visit, and all stated they suspected pregnancy, which was unwanted. Contraceptive practices reported by this group ranged from withdrawal to use of the birth control pill.

Three hypotheses were tested. The first hypothesis stated that adolescents with an internal locus of control show higher levels of sex knowledge and contraception than adolescents with an external locus of control. This hypothesis was based on the findings of previous studies which have linked internal locus of control with greater levels of knowledge about health related problems such as tuberculosis, hypertension and cigarette smoking. It was assumed that these findings might be extended to other preventive health measures such as contraception to prevent unwanted pregnancy. The second hypothesis proposed that internals would report more effective use of contraceptives than

externals. This proposition was based on limited evidence of previous studies which demonstrated a relationship between locus of control and health behaviors. The third hypothesis stated that, controlling for level of sex knowledge, internals would report more effective use of contraception than externals. This hypothesis was formulated in order to rule out a spurious relationship between internality and effectiveness of contraceptive use, attributable solely to the possible tendency of internals to have a greater amount of knowledge of contraception.

None of the proposed hypotheses were supported by the data. For this sample, it must be concluded that adolescents with an internal locus of control did not have greater knowledge of sex and contraception than adolescents with an external locus of control. The adolescents as a group, however, were moderately knowledgeable, scoring higher than groups of adolescents reported in past studies.

Secondly, no relation was found between internality and effectiveness in contraceptive practice. For this sample, scores on the Health Locus of Control scales were skewed somewhat to the internal end of the Internality Scale. Thirdly, when knowledge was controlled, internality did not correlate with effective contraceptive practice. Failure to support the hypothesized relations among locus of control, contraceptive practice and sex knowledge may be the result of problems of method or theory in this study.

Limitations of method have already been discussed in terms of inadequacies of instruments and sample. The Wallstons' Multidimensional Health Locus of Control Scales may have too broad a health focus to be useful for measuring an individual's perception of control over sexual behavior specifically. Reichelt and Werley's Sex Knowledge Test may

neglect to test specific information crucial for effective contraception. Howe's Contraceptive Effectiveness scale as a self-report tool relies on the accurate recall and truthfulness of respondents. In addition, it implies that contraceptive effectiveness is a matter of degree. Perhaps the concept should be more properly viewed as an all-or-none phenomenon, since effective contraception should be practiced at every act of intercourse to ensure avoidance of pregnancy.

It has been also acknowledged that the sample in this research was biased, being restricted to adolescents undergoing pregnancy tests. The hypotheses might be upheld with a broader, more representative sample of teenagers, including those presumed to be successful as well as those suspecting contraceptive failure. It is also true that the sample was comprised predominantly of adolescents with relatively low socioeconomic status. The obtained results may be specific to such a population, and might not have held for a middle class sample. It is possible that the construct of locus of control has salience only for middle class persons, and is much less salient for less priviledged groups. For the latter, lack of control over events and even personal affairs may reflect reality. Adolescent females from lower socio-economic groups may be at a disadvantage to exercise control, to be assertive, or to exercise responsibility. It may also be true that such adolescents may not place as much value on avoiding pregnancy as middle class adolescents. They may not share middle class goals and ambitions for the future which would be hampered by unplanned pregnancy. Their values may be quite different, and they may have ambivalent feelings about pregnancy. The risks and drawbacks associated with teenage pregnancy may be counterbalanced by the desire for adult status,

the possibility of marriage, and the potential rewards of motherhood. These may be seen as desirable outcomes of pregnancy by the adolescent. Hence, although the hypotheses were not supported for this sample, they might be upheld in the case of middle class adolescents more oriented to furthering their education and seeking careers.

However, it is still possible that the theoretical formulation itself may be faulty. Perhaps the same ambivalence regarding the avoidance of pregnancy operates for adolescents generally, not only for those of more disadvantaged economic status. Possibly, due to the adolescents' stage of cognitive development, the whole notion of locus of control may be irrelevant, overshadowed by other considerations, beliefs and values.

Much research is needed to clarify these issues. It is, then, recommended that future investigators attempt, first, to refine and develop more sensitive and valid instruments to measure the constructs of contraceptive effectiveness, locus of control and knowledge of contraception. Second, it is recommended that the hypotheses of this study be retested on samples more representative of the general adolescent population. Third, it is recommended that the emotional and cognitive meanings and values surrounding pregnancy, reproduction, marriage and parenthood be explored for adolescents generally, and for adolescents of different ethnic groups and classes. Fourth, adolescents' perceptions of the relative costs and benefits of avoidance of pregnancy should be determined. Finally, the meaning of control, and the extent to which the child-rearing practices of different classes stress control and responsibility over personal behaviors need to be better researched before the contraceptive behavior of adolescents may be adequately understood.

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Appendix A

Multidimensional Health Locus of Control Scale

(Form A)

(Wallston, Wallston & DeVellis, 1978)

This is a questionnaire designed to determine the way in which different people view certain important health-related issues. Each item is a belief statement with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item we would like you to circle the number that represents the extent to which you disagree or agree with the statement. The more strongly you agree with a statement, then the higher will be the number you circle. The more strongly you disagree with a statement, then the lower will be the number you circle. Please make sure that you answer every item and that you circle only one number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each item independently. When making your choice, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think we want you to believe.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. If I get sick, it is my own behavior which determines how soon I get well again.	1	2	3	4	5	6
2. No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
3. Having regular contact with my physician is the best way for me to avoid illness.	1	2	3	4	5	6
4. Most things that affect my health happen to me by accident.	1	2	3	4	5	6
5. Whenever I don't feel well, I should consult a medically trained professional.	1	2	3	4	5	6
6. I am in control of my health.	1	2	3	4	5	6

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
7. My family has a lot to do with my becoming sick or staying healthy.	1	2	3	4	5	6
8. When I get sick I am to blame.	1	2	3	4	5	6
9. Luck plays a big part in determining how soon I will recover from an illness.	1	2	3	4	5	6
10. Health professionals control my health.	1	2	3	4	5	6
11. My good health is largely a matter of good fortune.	1	2	3	4	5	6
12. The main thing which affects my health is what I myself do.	1	2	3	4	5	6
13. If I take care of myself, I can avoid illness.	1	2	3	4	5	6
14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1	2	3	4	5	6
15. No matter what I do, I'm likely to get sick.	1	2	3	4	5	6
16. If it's meant to be, I will stay healthy.	1	2	3	4	5	6
17. If I take the right actions, I can stay healthy.	1	2	3	4	5	6
18. Regarding my health, I can do only what my doctor tells me to do.	1	2	3	4	5	6

Appendix B

Sex Knowledge Questionnaire

Reichelt & Werley (1975)

Reichelt, Paul A., and Werley, Harriet H.

SEX KNOWLEDGE QUESTIONNAIRE

1. Have you ever had serious conversations about sex, birth control, pregnancy, or human sexuality with: (CIRCLE YES OR NO FOR EACH PART OF THE QUESTION.)

   Yes No--your parents?
   Yes No--a teacher or school counselor?
   Yes No--a clergyman?
   Yes No--a doctor?
   Yes No--a nurse?
   Yes No--a male friend?
   Yes No--a female friend?
   Yes No--other (Write in) _____

2. What is the main source of your information about sex, birth control, pregnancy, or human sexuality? (CHECK ONLY ONE ANSWER.)

   _____friends
   _____books, magazines, newspapers, movies, etc.
   _____parents
   _____teachers or school counselors
   _____other (Write in) _____

The following are all statements concerning human sexuality. For EACH statement answer True, or False, or Don't Know by circling the T or F or DK in front of the statement.

3. T F DK I don't know as much as I would like to know about birth control.

4. T F DK Rhythm is a highly effective method of birth control.

5. T F DK A girl can get pregnant the first time she has intercourse (makes love).

6. T F DK Douching after intercourse is a highly effective birth control method.

7. T F DK Sperm can live in the female's reproductive system for about 72 hours (3 days).

8. T F DK Oral-genital sex (mouth-sex organ contact) is a common practice.

9. T F DK If a woman does not have an orgasm (climax) during intercourse, she can't get pregnant.

10. T F DK Withdrawal (pulling out) is a highly effective method of birth control.

11. T F DK Swallowing sperm can make a woman pregnant.

Venereal Disease (VD)

12. T F DK Many cases of VD are caught by contact with toilet seats, drinking fountains, and swimming pools.

13. T F DK If the symptoms of VD disappear by themselves, no treatment is needed.

14. T F DK Once you've had VD, you can't get it again.

15. T F DK VD is not really dangerous to your health.

16. T F DK Minors can be treated for VD in Oregon without permission from their parents.

Menstruation (monthly period)

17. T F DK Menstruation is a clearing of the uterus (womb) to prepare again for possible pregnancy.

18. T F DK A woman's fertile time (when she is most likely to become pregnant) covers the middle of the interval between her menstrual periods.

The Birth Control Pill

19. T F DK The pill must be stopped every year for three months.

20. T F DK The pill is generally dangerous to use.

21. T F DK The pill may be taken along with other medications without decreasing its effectiveness.

22. T F DK The pill may be taken by a girl who uses alcohol and/or drugs.

23. T F DK The pill may not be taken if the woman has a history of certain illnesses.

24. T F DK The pill is the most effective method of birth control.

The Diaphragm

25. T F DK The diaphragm must be worn at all times.

26. T F DK A diaphragm should be used only after having been fitted for it by a doctor.

27. T F DK The effectiveness of the diaphragm is increased when used with a cream or jelly.

28. T K DK The diaphragm cannot be felt by either the man or woman when properly in place.

The Condom (rubber)

29. T F DK Using a rubber can help prevent the spread of venereal disease.

30. T F DK A rubber should be tested before use.

31. T F DK Rubbers break easily.

32. T F DK The rubber should be held around the base of the man's penis when withdrawn.

The I. U. D. (intrauterine device, such as the loop or coil)

33. T F DK The I. U. D. is inserted before each act of intercourse (making love).

34. T F DK The I. U. D. cannot be felt by the man or woman during intercourse.

35. T F DK The I. U. D. is the second most effective method of birth control.

36. T F DK The I. U. D. usually works best if the uterus (womb) has been stretched by a previous pregnancy.

Foams, Creams, & Jellies

37. T F DK They should be inserted just before each intercourse.

38. T F DK They work by killing sperm.

39. T F DK They can be bought without a prescription in any drug store.

40. T F DK When used with a rubber, they are a highly effective birth control method.

41. T F DK They should be washed out with a douche immediately after intercourse.

Abortion

42. T F DK An abortion can be done safely and easily by a doctor during the first 12 weeks of pregnancy.

43. T F DK Having an abortion will make the woman sterile (unable to have children in the future).

44. T F DK Anyone can tell if a girl has had an abortion.

Appendix C

Contraceptive Knowledge and Use Survey

(Questionnaire #3)

QUESTIONNAIRE #3

Contraceptive Knowledge and Use Survey

1. Your date of birth _____ Age _____

2. City of residence _____

3. Present marital status (check one)

   ____ married

   ____ single, divorced, other

4. What is the last grade of school you finished? (please circle):

Grade school	1	2	3	4	5	6	7	8
High school	9	10	11	12				
College	13	14	15	16				
Post-graduate	17+							

5. a) Please state your father's occupation if you are living with him.

   _____

   b) Please state your mother's occupation if you are living with her.

   _____

   c) Please state your husband's (or boy friend) occupation if you are living with him.

   _____

   d) Please state your occupation if you support yourself or are married and working.

   _____

6. Are you employed?

   ____ Yes ____ No

7. Do you attend school full time?

   ____ Yes ____ No

8. Are you currently using a method of birth control?

   ____ Yes ____ No

9. Please check the method - check more than one if appropriate:

   ____ Birth control pill

   ____ Intrauterine device (I.U.D.)

   ____ Diaphragm

   ____ Spermicidal Foam or Jelly

   ____ Condoms

   ____ Mucous or rhythm method

   ____ Withdrawal

10. How long have you used this method?

    ____ Years ____ Months

11. Do you and your partner use some kind of birth control?

    ____ Always

    ____ Most of the time

    ____ Once in a while

    ____ Very seldom

    ____ Never

12. If you have used birth control, which of the following methods have you used most often? (Mark the one used most often "1", the next most often "2", etc., for as many methods as you have used.)

    ____ The Pill

    ____ I.U.D. (Intrauterine Device, Loop, Etc.)

    ____ Diaphragm

    ____ Condom (Rubber) and Foam

    ____ Condom Only

    ____ Foam Only

    ____ Withdrawal (Pulling Out)

    ____ Douche (Washing Out Afterwards)

    ____ Rhythm (Safe Period)

    ____ Other; Please specify _____

13. Of those times you had sexual intercourse in the last two months, how often did you and your partner use birth control?

    ____ Always

    ____ Most of the time

    ____ Once in a while

    ____ Very seldom

    ____ Never

14. If you and your partner used birth control in the last two months, what kind did you use most often? (Please name only one.)

    ____ The Pill

    ____ I.U.D. (Intrauterine Device, Loop, Etc.)

    ____ Diaphragm

    ____ Condom (Rubber) and Foam

    ____ Condom Only

    ____ Foam Only

    ____ Withdrawal (Pulling Out)

    ____ Douche (Washing Out Afterwards)

    ____ Rhythm (Safe Period)

    ____ Other; Please specify _____

15. Did you and your partner use birth control the last time you had sexual intercourse?

    ____ Yes ____ No

16. If you and your partner used birth control the last time you had sexual intercourse, what kind did you use?

    ____ The Pill

    ____ I.U.D. (Intrauterine Device, Loop, Etc.)

    ____ Diaphragm

    ____ Condom (Rubber) and Foam

    ____ Condom Only

    ____ Foam Only

    ____ Withdrawal (Pulling Out)

    ____ Douche (Washing Out Afterwards)

    ____ Rhythm (Safe Period)

    ____ Other; Please specify _____

THE END - THANK YOU

_____

Eileen Moffitt

Appendix D

County Public Health Division

Client Intake Information

COUNTY PUBLIC HEALTH DIVISION
FAMILY PLANNING

DATE_____

NAME_____ Birthdate_____ Age_____

Address_____ City/State_____ Zip_____

Your Phone_____ Husband or Relative Name_____ Their Phone_____

Private Physician/Clinic_____ City_____

IF THIS IS CONFIDENTIAL, WHO OR WHERE DO WE CALL TO REACH YOU:

Name_____ Phone_____

- -

Are you receiving Welfare? Yes___ No___

If yes, _____
Program Branch Case Number Person Letter

Do you have health insurance? Yes___ No___

If yes, _____
Name Policy # Group #

6. Race: White _____ American Indian _____ Asian/Pacific Islander _____
Black _____ Alaskan Native _____ Hispanic _____
Other _____

7. Are you a seasonal agricultural worker? (check one) Seasonal _____
Migrant _____
Neither _____

10. What is total gross family income per month? _____

a. How many people does this income support? _____

b. Are you employed? Yes___ No___

c. If yes, what is your own total gross income per month? _____

11. How many times have you been pregnant? _____

How many births have you had? _____

Of these births, how many are still living? _____

CCP-H

Appendix E

Introduction to Study

Client Consent Form

INTRODUCTION

I am doing research to find out what women know about their health, family planning and contraception, and how they make decisions on important health related issues.

You will be asked to fill out three questionnaires prior to being seen by the nurse. Please fill them out in order, beginning with No. 1. This should take about 20-30 minutes. Please bring them to the nurse when you are called.

COUNTY PUBLIC HEALTH DIVISION
AND
OREGON HEALTH SCIENCES UNIVERSITY, SCHOOL OF NURSING

I, _____ agree to participate in the study names, The Effect of Locus of Control on Contraceptive Use by Sexually Active Teenage Women, by Eileen Moffitt, R.N., under the supervision of Dr. Julia Brown. The investigation explores the effects of knowledge about birth control and a sense of control on successful use of contraceptives.

It is my understanding that I will need to complete a questionnaire which asks questions about my knowledge of sex and contraception, my beliefs in the extent my own actions determine my health and questions about my use of birth control. Answering the questionnaire will take about 20 to 30 minutes.

I understand all information will be handled with the strictest confidence. My questionnaire will not be identified with my name or any number.

The data obtained may benefit me today as the nurse may identify areas where I need additional information. The major benefit of the research may be improvements in approaches to sex education.

Eileen Moffitt, R.N., or the clinic nurse has offered to answer any questions I may have about this questionnaire. I understand I am free to refuse to participate or to withdraw from participation in this study at any time without affecting my treatment at Family Planning Clinic of the Clackamas County Health Division.

I have read the above statements, and agree to participate in the study described.

Signature _____

Witness _____

Date _____ Time _____

APPENDIX F

MEASUREMENT OF EFFECTIVENESS OF CONTRACEPTIVE USE

Table I - Tool for Assigning Values for Contraceptive Use Effectiveness (Howe, 1980)

Table II - Table of Contraceptive Methods Use Effective Rates (Hatcher, Stewart, et al., 1978)

APPENDIX F

Table I

Points Assigned for Frequency of Contraceptive Use		Points Assigned for Type of Contraceptive Use	
Questions 11 and 13		Questions 12, 14 and 16	
Always Most of the time	(3 points)	Pill I.U.D. Diaphragm Foam & Condom	(3 points)
Once in a while	(2 points)		
Seldom Never	(1 point)	Condom only Foam only	(2 points)
		Withdrawal Douche Rhythm	(1 point)
		Nothing	(0 point)
Question 15			
Yes	(3 points)		
No	(1 point)		

* Decisions regarding effective versus less effective or ineffective methods of contraceptive use were based on "Table I: Method Effectiveness: Theoretical and Actual Use Rates" (Hatcher, R., Stewart, G., Stewart, F., Guest, F., Stratton, P. & Wright, A., 1978, p. 20).

APPENDIX F

Table II

Method Effectiveness: Theoretical and Actual Use Rates

Number of Pregnancies (Percentage Rates of Effectiveness) During the First Year of Use Per 100 Non-sterile Women Initiating Method

Method	Theoretical Use Effectiveness (%)		Actual Use Effectiveness	
	Method Used Correctly and Consistently:		Actual Average U.S. Experience Among 100 Women Who Wanted No (more) Children:	
	# Pregnancies Predicted per 100	% Rate Effectiveness	# Pregnancies per 100	Percent Effectiveness
Abstinence	0	100%	?	100%
Tubal Ligation (Female Sterilization)	.04	99.96	.04	99.96
Vasectomy (Male Sterilization)	.15	99.85	.15+	<99.85
Oral Contraceptives (Birth Control Pill)	.34	99.66	4-10	96-90
Intrauterine Device (I.U.D.)	1-3	99-97	5	95
Condom & Spermicidal Agent (Foam-Jelly)	<1	99	5	95
Diaphragm (with Spermicide)	3	97	17	83
Condom	3	97	10	90
Spermicidal (Foam) or Suppository	3	97	22	78
Coitus Interruptus (withdrawal)	9	91	20-25	80-75
Rhythm (Calendar)	13	87	21	79

Source: Contraceptive Technology, Hatcher, Stewart, Stewart, Guest, Stratten & Wright, 1978.

AN ABSTRACT OF THE THESIS OF

EILEEN B. MOFFITT

For the MASTER OF NURSING

Date of Receiving this Degree: June 11, 1982

Title: THE EFFECT OF LOCUS OF CONTROL ON CONTRACEPTIVE USE BY SEXUALLY ACTIVE TEENAGE WOMEN.

APPROVED: [redacted]

Julia S. Brown, Ph.D., Professor, Thesis Advisor

The purpose of this research was to explore the effect of locus of control on the knowledge of sexuality and contraception and on the contraceptive effectiveness of sexually active teenage women. Subjects in this study were 78 females, 15 through 19 years of age requesting a pregnancy test at a County Family Planning Clinic during the period, November 1, 1981, through December 31, 1981. All of these sexually active adolescents stated suspected pregnancy was unplanned and unwanted. Twenty-nine of the 78 females were pregnant.

The following hypotheses were tested. First, sexually active teenage females with an internal locus of control show higher levels of knowledge of sex and contraception than those with an external locus of control. Second, sexually active teenage females with an internal locus of control report effective use of contraceptives more frequently than those with an external locus of control. Contraceptive effectiveness was measured by Howe's scale which assessed the method of contraceptive used and the frequency of reported use in

three time frames; use in general, use in the past two months and use of contraceptives at last act of intercourse. Third, it was hypothesized that if knowledge of sex and contraception is controlled, sexually active teenagers with an internal locus of control will report more frequent use of an effective method of contraception than those with an external locus of control. This hypothesis was tested to rule out a spurious relationship between internality and contraceptive use attributable solely to the greater knowledge of internals.

None of the proposed hypotheses was supported in this study. Therefore, it must be concluded neither knowledge nor locus of control was an important variable for explaining the contraceptive effectiveness of the adolescents in this sample. The failure to uphold the hypotheses was discussed in terms of limitations of the theoretical formulations, limitations of the instruments, and the nonrepresentativeness of the sample. Recommendations were made regarding directions for future research.