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Young Adult Women's Contraceptive Decisions: A Comparison of Two Predictive Models of Choice

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YOUNG ADULT WOMEN'S CONTRACEPTIVE DECISIONS: A COMPARISON OF TWO PREDICTIVE MODELS OF CHOICE

by

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VITA

The author, Elicia J. Herz, was born February 21, 1954 in Kansas City, Missouri.

After graduating from high school in 1972, she attended the Kansas State Teachers College during her freshman year. In August, 1973, she transferred to the University of Kansas and received a Bachelor of Arts degree, with a major in psychology, in May of 1976. While attending the University of Kansas, she was an honors student in the psychology department during the 1975-76 academic year and was elected a member of Phi Beta Kappa in 1976.

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INTRODUCTION

Premarital sexual activity, contraceptive use, pregnancy, and illegitimacy continue to be major social issues in the 1980's as documented in several nation-wide sociological fertility studies. Zelnik and Kantner (1980) found that the proportion of young, unmarried women (between the ages of 15 and 19) who have had premarital sexual intercourse has increased from one-third in 1971 to one-half in 1979. Not surprisingly, as age increases so does the likelihood of sexual experience (Kantner & Zelnik, 1972, 1973).

Contraceptive use among young, unmarried women who are sexually active is relatively inconsistent. In their 1979 study, Zelnik and Kantner found that one-third of the sample always used birth control, two-fifths practiced a method sometimes, and roughly one-fourth said they never used any contraception. Among those who ever practiced contraception, the pill, condom, and withdrawal were the most popular recent methods of choice in both 1971 and 1979 (Zelnik & Kantner, 1980). Both age and education have a positive effect on consistency of contraceptive use: college women (18 and 19 years of age) were the most likely to have used birth control during their most recent sexual encounter and were also the most likely to have always practiced contraception, compared to younger and noncollege women (Kantner & Zelnik, 1973).

Inconsistent and/or incorrect contraceptive use, as well as "poor" contraceptive choice undoubtedly contribute to the incidence of premarital pregnancy. One-third of all sexually active unmarried women between 15 and 19 years of age reported at least one pregnancy in 1979, up from one-fourth in 1971. A slight increase in the pregnancy rate among contraceptive users was also evident in 1979. Zelnik and Kantner (1980) postulated that this increase was due to several concurrent factors: (a) a rise in the frequency of intercourse in the late 1970's, (b) a decline in the use of effective methods such as the pill and IUD, and (c) an increase in the use of less effective methods of contraception, especially withdrawal. Unfortunately, a comparison of these trends by age was not provided in their preliminary report.

Premarital pregnancies often result in illegitimate births among young women. Although it is popularly believed that teens run the greatest risk of bearing out-of-wedlock children, overall they maintained the lowest illegitimacy rate (number of illegitimate births per 1000 unmarried females) of any age group between 15 and 30 in the mid-1970's, according to the U.S. Department of Health and Human Services (1980). In contrast, statistics for 1976 reveal that the illegitimacy rate for women for all races between the ages of 18 and 24 was higher than for any other age group; the same trend was evident within the white and black races separately. Overall, the illegitimacy rate for the 15 to 17 age group was 19.3; the rate for 18 and 19 year olds was 32.5; for those in the 20 to 24 age

range, this rate was 32.2 and for the 25 to 29 age group, the illegitimacy rate was 27.5.

Illegitimate births would seem to be one result of the relatively inconsistent use of contraception. In addition, the U.S. Department of Health and Human Services (1980) suggested that legalized abortions have stemmed the tide of the previously escalating illegitimacy rate, particularly for the under-20 age group and among nonwhite women. However, in the 1980's, the U.S. has witnessed an increasing conservatism which may lead to a constitutional amendment to ban abortions within the next few years ("The Issue That Won't Go Away," 1983). If such an amendment is passed, it seems likely that illegitimacy rates may again rise.

Out-of-wedlock births are associated with a variety of individual and societal costs. Such births frequently result in a draining of financial resources at the federal level. In addition, young women with illegitimate children often suffer from lost educational opportunities and poorer job prospects (see Moore & Burt, 1982 for a review of this literature). Unwed mothers, compared to married mothers, are less likely to receive adequate prenatal care which may contribute to the higher incidence of premature births and the concomittant infant health problems that the former group experiences (Alan Guttmacher Institute, 1981; Cvetkovich, Grote, Bjorseth, & Sarkissian, 1975; Moore & Burt, 1982). In general, unwed mothers and their illegitimate children not only must endure substantial costs at the individual level, but in the long run, may be unable to

contribute productively to society as a whole.

In the 1980's, the incidences of out-of-wedlock pregnancies and births are still elevated. Research aimed at understanding why young, unmarried women do and do not (a) become sexually active, or (b) utilize available contraceptives, is greatly needed. Armed with knowledge in both areas, particularly the latter, policy-makers and service delivery agencies may be able to improve effective contraceptive use and reduce risk-taking behavior. The focus of the current study was on the second issue.

Fertility studies, such as those conducted by Zelnik and Kantner and the U.S. Department of Health and Human Services, provide aggregate statistics concerning the demographic and experiential correlates (e.g., age, coitus frequency) of contraceptive use/nonuse and pregnancy. These data are useful in pinpointing which groups of women are inconsistent or ineffective contraceptors, but such aggregate numbers do not reveal why one or another contraceptive method is chosen at the individual level.

The current study addressed the issue of contraceptive intentions and preference among unmarried women between the ages of 18 and 24. This age group was selected for research because fertility studies indicate that these women have a high incidence of illegitimate births. Six methods of birth control were selected for investigation. The pill, condom, and withdrawal were included because previous research (Zelnik & Kantner, 1980) indicated that these are

popular contraceptives among young, single women. In addition, the IUD, diaphragm, and rhythm methods were selected in order to represent all of the major contraceptives available. One major goal of the study was to examine which of several social psychological factors are associated with: (a) intentions to use each of these contraceptives, and (b) relative choice among the six methods. The explanatory or predictive factors included behavioral outcome beliefs, interpersonal influences, previous sexual and contraceptive experience, expectations regarding future sexual activity, locus of control beliefs, and selected demographics. A second goal was to compare the predictive utility of two psychological approaches to understanding contraceptive preference: (a) the Fishbein and Ajzen (1975) expectancy-value model, and (b) an empirically-derived predictive decision factor model, conceptually similar to social judgment theory (Hammond, Stewart, Brehmer, & Steinmann, 1975). These theories were chosen for the investigation on the basis of a critical review of previous psychological research in the area of contraception.

Past Psychological Studies of Contraceptive Use: A Critique

Early psychological studies of birth control practice were based on three different approaches. First, the psychoanalytic approach examined unconscious motives and the sexual-symbolic nature of contraceptive use. Since most of these studies employed small numbers of psychiatric clients as respondents, findings based on such samples may not generalize to non-clinical populations (Fawcett, 1970; Hall, 1977; Luker, 1975). Second, the "contraceptive ignorance"

theory suggests that lack of knowledge regarding available methods is the major determinant of poor contraceptive practice. Very little support has been found for this theory. In fact, most studies have found a high degree of contraceptive awareness among adolescent and adult women (Hall, 1977; Luker, 1975). Third, literally hundreds of studies have adopted an eclectic approach using various measures of motivation, mobility, communications, and attitudes to predict birth planning.

Within this third category of research is a class of studies known as KAP (knowledge, attitude, and practice) surveys administered to a wide variety of populations in many countries over the past few decades (Fawcett, 1970; Werner, 1977). Such surveys are frequently used to provide explanations of fertility differences, mainly in terms of socio-demographic variables (as noted above) and/or for the purposes of program evaluation. Werner (1977) contends that an examination of the KAP survey literature reveals little consistent evidence that attitudes strongly predict birth planning behavior.

Both Fawcett (1970) and Werner (1977) argue that the bulk of KAP studies can be faulted on psychometric/measurement grounds, specifically in terms of poor instrument reliability (when assessed at all) and lack of comparison groups, where appropriate. Werner also noted that low correlations between attitudes and behavior often result from "problems of the referent"; that is, attitudes toward family planning in KAP studies are frequently measured in reference to "people in general" rather than in terms of attitudes toward

one's own contraceptive practice. On the other hand, behavioral measures are more narrowly defined and tend to focus on a single action or on actions taken over a long period of time. Werner suggested that the attitude-behavior relationship could be enhanced by attending to issues of reliability, by utilizing multi-item measures of behavior, and by developing attitude and behavior measures having the same referent (e.g., a specific method, a similar time span, etc.). This latter suggestion has been incorporated into the Fishbein and Ajzen (1975) model (to be described below).

Unsatisfactory progress has been made toward an understanding of family planning behavior and contraceptive use. Several investigators (Fawcett, 1970; Luker, 1975; Severy, Note 1; Steinlauf, 1979) have noted the lack of an adequate theoretical framework for studying contraceptive behavior and have suggested that choice of method be examined as goal-directed decision-making behavior. One such approach is provided by expectancy-value theory.

Theoretical Focus: The Expectancy-Value Approach

Fishbein and Ajzen (1975) have developed what they believe is a general model to describe attitude-behavior relationships based on expectancy-value theory. It has been argued that this model can be viewed as a quasi-decision theory (Jaccard & Davidson, 1972) in that it describes how perceived cost/benefit information combines to predict a judgment (i.e., behavioral intention). Applications of the model to a wide range of behavioral domains have been successful (see Fishbein & Ajzen, 1975 for a review of this research). In

addition, Fishbein (1972) has explicitly suggested that the model can be utilized to predict family planning behaviors.

According to expectancy-value theory, a particular behavior is directly determined by intentions, or subjective likelihood estimates that one will perform that behavior (e.g., I intend/do not intend to use birth control pills). An intention is a function of two factors: (a) attitudes toward performing the behavior (e.g., using the pill is good/bad), and (b) subjective norms concerning the behavior (e.g., people who are important to me think I should/should not use the pill). Each of these components is based on other underlying factors. The attitude toward the behavior component is a function of beliefs or expectations that the behavior will lead to certain outcomes (e.g., using the pill will probably/probably not decrease my chance of pregnancy), each multiplied or weighted by an evaluation of outcomes (e.g., a decreased chance of pregnancy is good/bad), summed over all outcomes. The subjective norm component is a function of normative beliefs about the expectations of specific "significant others" (e.g., my friends think I should/should not use the pill) weighted by the motivation to comply with these referent groups (e.g., I want very much to/not to do what my friends want me to do), summed across all referents. Finally, Fishbein (1979) has argued that variables external to the expectancy-value model (e.g., demographics, past behavior, personality factors) can only have an indirect effect on intentions and thus behavior by influencing (a) specific behavioral or normative beliefs, outcome evaluations, or motivations to comply,

or (b) the relative importance of attitudes toward the behavior or subjective norms, which determine intentions.

Figure 1 illustrates the direct and indirect relationships between various expectancy-value model components, and the role of variables external to the model. To summarize, behavior is predicted from the intention (I) to perform that behavior. Intentions are directly predicted by (a) attitudes toward performing the behavior (AB) and (b) subjective norms concerning the behavior (SN). Relative weights for the contribution of these two components to the prediction of intentions (i.e., w_1 and w_2, respectively in Figure 1) are empirically determined through standard multiple regression procedures. Equation 1 represents this regression model.

$$I = w_1AB + w_2SN \tag{1}$$

It was previously noted that the attitude toward performing the behavior component (AB) is a function of the summed cross-products (ΣBe) of specific behavioral beliefs (B) and their respective outcome evaluations (e). Likewise, the subjective norm component (SN) is a function of the summed cross-products (ΣNMc) of specific normative beliefs (N) and their respective motivation to comply (Mc) measures. Equations 2 and 3 represent these hypothesized relationships. The ΣBe and ΣNMc indices, as well as variables external to the model, are hypothesized to be <u>indirectly</u> related to intentions and thus behavior (see Figure 1).

$$AB = \Sigma Be \tag{2}$$

$$SN = \Sigma NMc \tag{3}$$

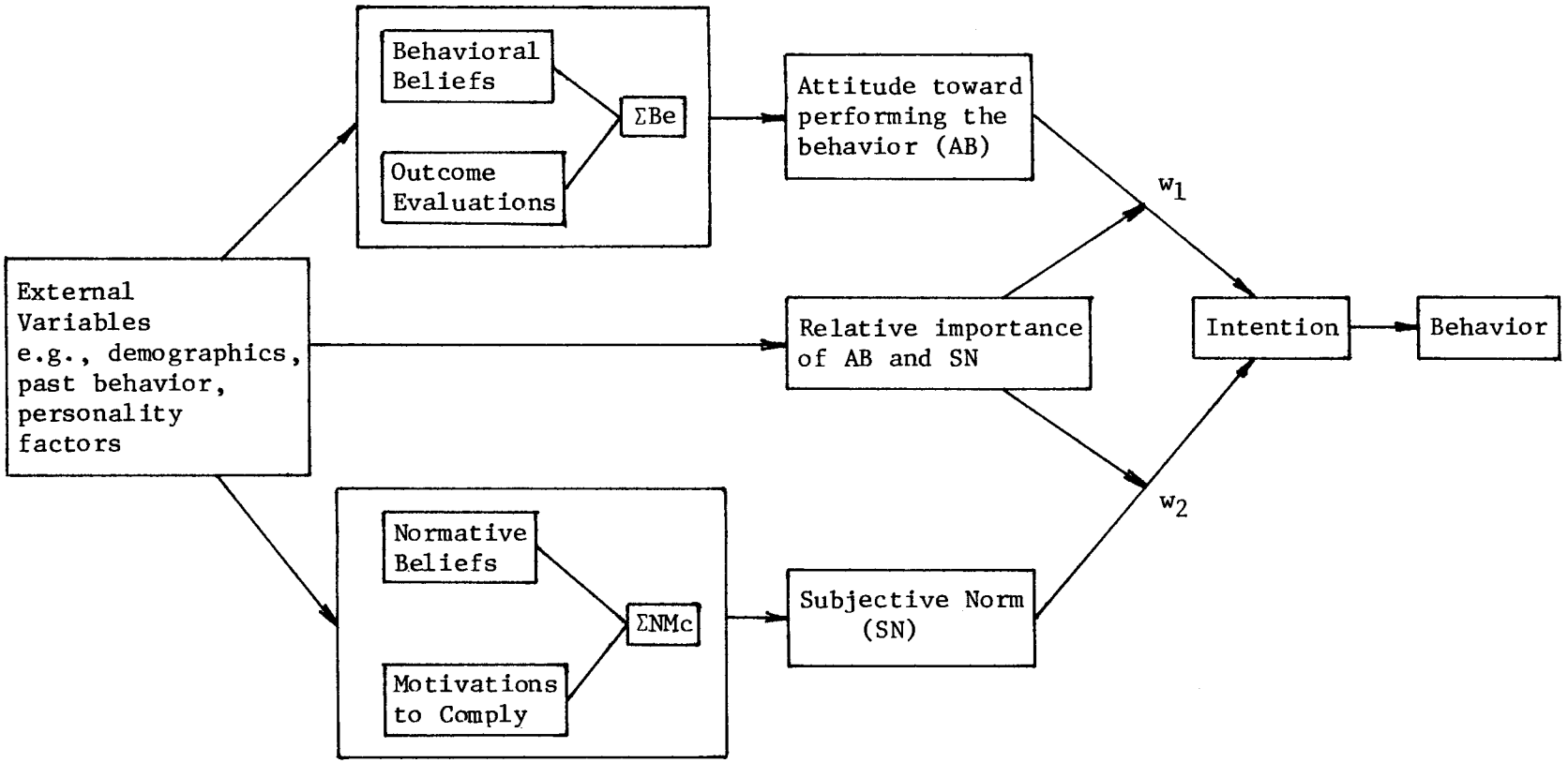


Figure 1. The expectancy-value model (adapted from Fishbein, 1979)

Expectancy-Value Theory as a Model of Contraceptive Intentions: Supporting Evidence

Several studies provide indirect support for the relevance of the expectancy-value attitudinal and normative model components in shaping contraceptive choice. The normative influence of peers, current boyfriends and, to a lesser extent, parents have been found to play a role in determining contraceptive use/nonuse among females (Herold & Thomas, 1978; Thompson & Spanier, 1978). In terms of behavioral outcomes, Luker (1975) noted that pregnancy avoidance is not the only benefit or goal of method choice for most women. Beliefs about the positive benefits (e.g., convenience of use, reliability) and negative consequences (e.g., weight gain, reduced spontaneity) linked with various methods of birth control have been delineated in many studies (Anderson, McPherson, Beeching, Weinberg, & Vessey, 1978; Angell, Kadylak, & Ginn, 1975; Chilman, 1973; Luker, 1975; Needle, 1977).

Some studies have successfully employed the Fishbein and Ajzen model for predicting intentions to use the pill (Davidson & Jaccard, 1975; Jaccard & Davidson, 1972) and actual pill use (Werner & Middlestadt, 1979). However, applications of the model have given insufficient attention to the examination of intentions to use or actual use of alternatives to the pill.

In an attempt to fill this research gap, Cohen, Severy and their colleagues have conducted several studies describing the attitudinal and normative factors leading to partners' contraceptive

decisions. In their early work (Cohen, Severy, & Ahtola, 1978), they were able to identify twenty-three salient beliefs or attitudinal items associated with ten different contraceptives. They found that their somewhat modified version of the Fishbein and Ajzen model was able to predict behavioral intentions quite well and that important attitudinal and normative differences among both population and contraceptive-use subgroups can be identified. Given that their 1978 pilot study utilized a very small sample (n = 58), Cohen and his associates noted that there is a need for more work in this area employing larger samples of key segments of the population. Currently, Severy and his colleagues (Note 1) are conducting several longitudinal studies with black and white married couples based on the theoretical underpinnings of: (a) expectancy-value formulations such as the Fishbein and Ajzen model, (b) couples' joint decision-making processes as treated in consumer research, and (c) the role of power/decision-making styles in marital relationships. The primary purpose of these studies is to examine the impact of joint decision-making on contraceptive use within the context of an expectancy-value analysis.

Although the research of Cohen, Severy and their colleagues is a step in the right direction, studies of contraceptive preferences among unmarried women are greatly needed. Such research should be designed to determine whether different patterns of attitudinal and normative influences are associated with a variety of contraceptive methods and how these patterns determine contraceptive preference.

The current study was an attempt to fill portions of this gap in research. Armed with the knowledge gained through such research, Fishbein (1972) argues that it would then be possible to develop strategies for changing birth control intentions by focusing on the appropriate model component (i.e., attitudes or normative beliefs) for a given population.

A Critique of Expectancy-Value Theory

The expectancy-value model as discussed thus far emphasizes the prediction of intention rather than behavior. Fishbein and his colleagues (Fishbein & Ajzen, 1975; Davidson & Jaccard, 1979) have discussed several factors which may influence the apparent relationship between intentions and behavior. First, the degree of correspondence or specificity between measures of intention and behavior may influence their relationship; that is, the higher the measurement correspondence, the larger the correlation between intentions and behavior. Second, the instability of an intention over time may attenuate the intention-behavior relationship. The longer the time interval between the measurement of intentions and behavior, the greater the likelihood that events may occur which will change the intention and thus reduce the correspondence between measures of intention and behavior. Third, the degree to which the behavior (or intervening steps leading to the behavior) is under volitional control may affect the intention-behavior relationship. In other words, the more the behavior is under volitional control, the greater the correlation between intentions and behavior.

Another issue of concern is the hypothesized role of "external" variables in the prediction of intentions and behavior. Recall that Fishbein and Ajzen (1975) postulated that variables external to their model (e.g., demographics, past behavior, personality factors) can only have an indirect effect on intentions and thus behavior by influencing (a) specific beliefs, outcome evaluations or motivations to comply, or (b) the relative importance of attitudes toward performing the behavior or subjective norms concerning the behavior. One external variable which has received considerable attention within this context is past behavior or direct experience.

Several studies (Fazio & Zanna, 1978; Fazio, Zanna, & Cooper, 1978; Regan & Fazio, 1977) have found support for the notion that direct experience with a behavior moderates the attitude-behavior, and by implication, the intention-behavior relationship. In other words, attitudes formed on the basis of direct experience have been found to be more predictive of later behavior than attitudes formed upon indirect or no experience. Other investigators (Bentler & Speckart, 1979; Sherman, Presson, Chassin, Bensenberg, Corty, & Olshavsky, 1982; Songer-Nocks, 1976) have explored the role of direct experience in behavioral prediction, within the framework of expectancy-value theory, and have found that variations in experience differentially predict intentions and behavior. That is, the effect of past experience on subsequent behavior may not be entirely mediated by intentions or other expectancy-value model components, as delineated in the theory.

In general, these studies cast doubt on the hypothesized indirect influence of external variables, in particular previous experience, on intentions and future behavior. The current study also addressed this issue. The impact of several external variables on intentions to use various contraceptives was investigated, including: (a) previous sexual and contraceptive experience, (b) expectations regarding future sexual activity, (c) locus of control beliefs (see below), and (d) selected demographics.

Locus of control (LOC) is a pervasive tendency to view outcomes as under personal control or as the result of external forces such as luck or fate (Rotter, 1966). In theory, the person who sees pregnancy as controllable should contracept more effectively than the person who feels "what will be, will be." Many studies have examined the moderating influence of LOC on contraceptive practice (Dignan, 1979; Fox, 1977; Gough, 1973; Hall, 1977; Harvey, 1976; Lundy, 1972; McDonald, 1970; Steinlauf, 1979). Although some inconsistent findings have been obtained, the bulk of the evidence seems to favor the predictive utility of the LOC concept. However, no studies have examined whether LOC adds any explanatory power in conjunction with, or in addition to, the expectancy-value model components in accounting for contraceptive choice. The current study examined this issue.

Rotter (1975) suggested that better behavioral prediction in a narrowly-defined situation may be attained with more specific measures of the LOC construct than with his more general Internal-External Locus of Control Scale. For example, the Rotter (1966)

scale would not be expected to relate to contraceptive preferences as well as locus of control beliefs regarding the likelihood of pregnancy. Thus, specific types of LOC scales were developed for the present investigation and are described in the METHOD section.

Understanding Multiple Alternative Choices: The Expectancy-Value Model and Decision Theory Approaches

Traditionally, expectancy-value theory has been used to describe intentions to perform a single behavior. In the contraceptive domain, it was previously noted that several studies (Davidson & Jaccard, 1975; Jaccard & Davidson, 1972; Werner & Middlestadt, 1979) have successfully employed the expectancy-value model to predict intentions to use the pill or actual pill use. However, these studies have implicitly treated contraceptive decisions as a "pill-no pill" choice, when a more realistic view is that the relative desirability of several alternatives may be compared and considered simultaneously.

From a conceptual standpoint, the issue to be addressed is how people choose among multiple behavioral alternatives. Decision theorists have developed a variety of models to address this issue (Hogarth, 1980; Payne, 1976; Svenson, 1979). These models may be classified according to the rules used to describe how alternatives are compared to produce a choice decision. In multiple choice situations, alternatives may be (a) examined singly or "one-at-a-time," (b) compared in pairs or "two-at-a-time," or (c) the entire set may be compared simultaneously, that is, "many-at-a-time." Comparisons

are made on the basis of dimensions or attributes relevant to the decision. For example, in choosing among apartments, relevant dimensions or attributes may include size of the apartment, rent, location, and so forth. The evaluation of a dimension is usually interpreted as representing the utility or attractiveness of that attribute for a given alternative (Svenson, 1979).

An example of a single alternative or "one-at-a-time" decision rule was originally proposed by Simon (1955). Judges employ a "satisficing" strategy if they choose the first alternative which meets or exceeds the criterion attractiveness value on each relevant attribute. Suppose, for example, a person is looking for a new apartment and he/she has established a minimum acceptable criterion value on three relevant judgmental dimensions: overall size, rent, and proximity to work. Apartment A is examined first and is subsequently eliminated because it fails to meet the rent criterion. The judge then proceeds to evaluate Apartment B and, on the basis of having met all relevant criteria, he/she selects this apartment. Other potential alternative apartments are not examined or evaluated. The judge, using a "one-at-a-time" or "satisficing" strategy, thus makes a choice of where to live.

A somewhat more complex decision strategy is represented in pair-wise comparisons among alternatives. Tversky (1969; cited in Payne, 1976) developed an additive-difference decision model which assumes that judges compare two alternatives directly on relevant

dimensions in turn, compute a difference on each dimension, and then, sum the differences to yield a relative preference.

Sperber, Fishbein and Ajzen (1980) employed an analysis conceptually similar to Tversky's additive-difference decision model to address the issue of choice intention in a study of women's occupational orientations. Choice intention was measured using a paired-comparison format; that is, they employed a single 7-point likelihood scale, anchored by "intention to pursue a career" on one end and "intention to become a homemaker" on the other. Separate measures of intentions to perform each alternative behavior were also obtained. It was hypothesized that the numerical difference between the two separate intention scales, one for each alternative, would be related to choice intention. They found that ". . . in a situation which involves a choice between two alternatives, better prediction can be obtained by considering the <u>difference</u> between the intentions concerning each of the two alternatives than by considering either intention individually" (p. 118). Differential indices were also computed in a similar manner for the remaining model components (i.e., AB, SN, ΣBe and ΣNMc; see Figure 1). These indices were then used to predict and explain differential intentions.

Payne (1976) noted that it is unclear how an additive-difference decision strategy would be utilized in a multiple alternative choice situation. He suggested one possible solution in which the decision-maker would compare a third alternative to the preferred

alternative from a previous paired-comparison. Then, if the third alternative is preferred, it would become the new standard for comparison, and so forth.

Other decision models allow comparisons among multiple alternatives simultaneously. One such model is subjective expected utility theory. In this case, each alternative is evaluated separately on each dimension relevant to the choice. The utility or attractiveness of each dimension is weighted by the subjective probability of its occurrence for a given alternative, then summed over the utilities. The total utility for all alternatives are then compared. It is hypothesized that the alternative with the largest total utility will be chosen. The simultaneous comparison of all alternatives occurs in the final stage of this decision model (Payne, 1976).

"Elimination-by-aspects" is another decision rule which assumes that multiple alternatives are compared simultaneously (Tversky, 1972; cited in Svenson, 1979). In this case, the most important attribute or dimension is investigated across all alternatives. Every alternative which does not meet or exceed the criterion value of acceptance on this dimension is eliminated. The procedure is repeated with additional attributes successively lower in the "importance" hierarchy until a single alternative has failed to be eliminated. This single remaining alternative is then chosen by the judge.

As evidenced by this selective review of decision theories, a variety of strategies may be utilized to choose among multiple

alternative behaviors. Studies of the decision process in various domains have shown that (a) different judges use a variety of decision strategies (Payne, 1976), and (b) the same judge may use multiple strategies within the same decision task (Payne, Braunstein, & Carroll, 1978; Svenson, 1979). When presented with a task such as choosing among more than two alternatives, people often use various strategies to simplify the task prior to making a choice. For example, they may immediately eliminate two or three out of six alternatives because these do not meet some minimum criterion of acceptance on a single important attribute, and then proceed to thoroughly examine the remaining alternatives. This two-stage process represents a combination of an "elimination-by-aspects" decision rule, followed by, for example, a more general expected utility analysis.

To the investigator's knowledge, no research has been conducted on the contraceptive decision-making process. In order to evaluate how such decisions are actually made, an investigation of the process at the time of the decision would be required. Appropriate methodologies for such a study would include process-tracing or information-search techniques (for a review of these techniques, see Payne et al., 1978; Svenson, 1979).

The present study was not designed to examine the contraceptive decision-making process itself. Rather, structural analyses of final judgments or decision outcomes were undertaken. Such analyses

examine the end result of the decision process and relate choices to parameters characterizing the decision task (Svenson, 1979).

Because some type of comparative judgment process was believed to occur in contraceptive choice situations, the self-administered survey developed for this study was designed to encourage a comparative analysis. Decision researchers (Einhorn & Hogarth, 1981; Payne, in press) have found that the experimental task environment itself influences judgments and choice. In other words, people adjust their behavior to fit the task with which they are presented. Attribute-wise elicitation procedures have been found to promote comparisons among alternatives (Bettman & Kakkar, 1977; Herstein, 1981). Therefore, survey items were organized to elicit such judgments by presenting respondents with one attribute (e.g., prevents pregnancy effectively) upon which to rate each of the six contraceptives, then the next attribute, and so forth. For consistency, the contraceptive preference or choice measure, that is, the dependent variable of interest, required respondents to make a comparative decision by indicating which of the six birth control methods they would be most likely to intend to use in the near future.

It should be noted that Fishbein and Ajzen would probably have employed an alternative-wise elicitation strategy, given their foundation in attitude theory rather than decision analysis. Such an elicitation procedure structures the task so that respondents judge a single alternative (e.g., the pill) on all evaluative

dimensions, followed by similar judgments for the next alternative (e.g., the IUD), and so forth. Given the large number of dimensions to be evaluated in this study, such alternative-wise judgments would not have been as likely to encourage implicit comparisons across the set of contraceptive methods, as the attribute-wise approach selected by the investigator.

Strict expectancy-value theory proponents might argue that the methodological and analytical procedures used in this study do not accurately reflect certain aspects of the Fishbein-Ajzen model. One goal of the theory is to discover the salient target beliefs that determine AB and SN for a given behavior, which in turn determine intentions to perform that behavior. In this study, all contraceptive alternatives were rated with respect to all behavioral and normative beliefs. However, each such belief was not originally elicited for every contraceptive in preliminary interviews (see the METHOD section) designed to establish the set of salient beliefs to be included on the survey. According to expectancy-value theory, only those beliefs which were salient for a given contraceptive should have been used to compute the ΣBe and ΣNMc indices for that method.

The inclusion of all beliefs in the ΣBe and ΣNMc indices for each contraceptive can be defended on several grounds. The procedure used in this study to obtain a listing of salient beliefs was virtually the same as that used by Sperber, Fishbein, and Ajzen

(1980) in their study of occupational choices. Respondents in both studies were asked to list the advantages and disadvantages associated with each behavioral option under investigation. In a similar manner, a listing of normative referent groups was established in each study. Sperber et al. (1980) obtained 20 salient outcomes associated with pursuing a career or being a homemaker. It is doubtful that each of these individual outcomes was elicited for both career versus home orientation. For example, one outcome was "not having to worry about working"; this consequence was probably elicited with reference to being a homemaker, but not with respect to pursuing a career. However, in their follow-up study designed to test the expectancy-value model, respondents rated the likelihood that each lifestyle would lead to this outcome; thus, Sperber et al. (1980) obtained behavioral belief measures for both lifestyles on all outcomes found to be salient for either pursuing a career or being a homemaker. A logical expansion of the Sperber, Fishbein, and Ajzen procedure to a choice situation involving more than two alternatives would be to obtain belief ratings for all alternatives across the entire set of outcomes originally determined to be salient consequences for one or more of the behavioral options. This approach was utilized in the current study.

The inclusion of all beliefs in the ΣBe and ΣNMc indices for each contraceptive was also dictated by the procedure used to encourage comparative judgments. Recall that respondents were presented with an outcome and then rated the likelihood that each of the six

contraceptives would lead to that outcome, followed by similar belief ratings for each method on the next outcome, and so forth. This judgment task probably made each outcome salient for all contraceptive alternatives. Thus, the inclusion of all beliefs in the ΣBe and ΣNMc indices for each contraceptive method accurately represented the experimental task.

Traditionally, expectancy-value theory has been examined within the context of a single behavior, as previously noted. It is unclear how the model should be expanded to measure choice intentions, particularly preferences among multiple behavioral alternatives as in the present study. In general, a set of beliefs determined to be salient for one or more alternative behaviors across many respondents may not be important for a single individual. Moreover, a salient belief set for one respondent may not be the same for other individuals. To ensure that at least a subset of beliefs are relevant for a given individual, a variety of behavioral and normative beliefs must be included. This strategy was employed in the current study.

To summarize, applications of the expectancy-value model to choice situations have been limited to paired-comparison tasks involving two alternatives. Utilizing the Sperber, Fishbein, and Ajzen (1980) additive-difference model in the current study would have required respondents to make fifteen pair-wise choice intention judgments for the six contraceptive methods, in addition to rating each method individually on a standard intention scale. In order to test the expectancy-value model on the basis of this analytic

framework, fifteen multiple regression analyses of differential intentions would have been required. Instead, a conceptual and analytic expansion of the expectancy-value model was undertaken. The judgment task required respondents to make implicit comparisons among all six contraceptives on every attribute, rather than direct pair-wise assessments. The task also permitted a more parsimonious examination of the data, using discriminant analysis procedures, than a pair-wise format would have allowed.

An Alternative Theoretical Approach to Predicting Intentions and Choice: The Predictive Decision Factor Model

Alternative decision analysis models are available for predicting intentions to perform a given behavior. Several potential frameworks were reviewed earlier. An analytic approach which relates beliefs to intentions in a more direct and less complex manner than the Fishbein-Ajzen model was undertaken in this study. Specifically, this set of analyses was performed to determine: (a) whether a more parsimonious (requiring fewer measures) and content-specific set of predictor variables could be empirically-derived to predict contraceptive intentions and choice, and (b) whether this set of predictors could do as well as, or better than, the expectancy-value model components in predicting intentions and choice. The alternative analysis, referred to as the predictive decision factor model, is conceptually similar to social judgment theory (Hammond et al., 1975).

Social judgment theory, based on Brunswik's "lens model" of behavior, utilizes a correlational approach to describing human

judgment and decision processes. It is a variant of decision analysis that requires the fewest conceptual and mathematical assumptions. Basically, judgments are predicted from a linear combination of cues or dimensions using standard multiple regression procedures. Cue dimensions are information sources that define a stimulus object. For example, if one wants to predict intentions to use a contraceptive, dimensions or cues may include ratings of effectiveness, ease of use, social approval and so forth. Subjects would be presented with a large number of hypothetical contraceptives varying in their values on these dimensions. Separate analyses would be performed for each subject. The beta weights generated through multiple regression indicate the importance of each cue for each judge. Intentions to use any specific contraceptive such as the pill would be predicted from the weights applied to the dimension values of the pill. Slovic and Lichtenstein (1973) noted that when judges are required to make responses on a dependent or criterion measure involving multiple alternatives (e.g., choice among two or more contraceptive methods), then discriminant analysis--the categorical analog of multiple regression--may be utilized to examine how cues are weighted in the judgment process.

In terms of predicting decision outcomes, social judgment theory differs from the expectancy-value approach in several important ways. Recall that in expectancy-value theory, the direct predictor variables (i.e., AB and SN) represent global, abstract attitudinal and normative constructs. In social judgment theory,

factors utilized in the prediction of a criterion represent more specific cue dimensions; these cues would in fact be essentially equivalent to the individual behavioral and normative beliefs conceptualized as indirectly related to decision outcomes in expectancy-value theory.

Another difference between the two theoretical approaches concerns how cues are conceptually distinguished from one another. In expectancy-value theory, beliefs (i.e., subjective likelihood estimates that a particular outcome is associated with a given alternative behavior) are divided into two conceptually distinct categories: (a) behavioral beliefs and (b) normative beliefs. Social judgment theorists would not distinguish behavioral from normative beliefs, given that both are estimates of whether a particular outcome will result from the performance of a given behavior, be that outcome social approval or, for example, major health hazards. Rather, these theorists would distinguish cues on the basis of content similarity.

A final major difference between the two theoretical approaches concerns the weighting of certain model components. In the Fishbein-Ajzen model, individual behavioral and normative beliefs are weighted by outcome evaluations and motivation to comply ratings, respectively (see Figure 1 and the accompanying description of expectancy-value theory). These weights are respondent-specific. Decision researchers (Dawes, 1979; Slovic & Lichtenstein, 1973) have found that people are generally not very accurate at directly providing

their own subjective weights (usually importance ratings) for various types of outcomes. (Note, however, that outcome evaluations and motivation to comply measures, utilized as weights in expectancy-value theory, are not importance ratings per se.) Social judgment theorists would consider the respondent-specific weights for the individual behavioral and normative beliefs utilized in expectancy-value theory to be poor estimates of the importance of each cue for a given judge. Rather, through a series of trial judgments, empirical weights would be derived for each respondent. In lieu of such an extensive process, social judgment theorists would simply utilize unit weights or consensual weights generated by regression analyses aggregating across respondents for each cue dimension in their predictive models.

Both of the theoretical perspectives are similar in terms of the parameters utilized in the prediction equations. Each model relies on a multiple regression (or, by extension, a discriminant analysis) program to generate best-fitting weights for predictor components. In the case of expectancy-value theory, the weights are derived for the AB and SN components. Within social judgment theory, the weights are empirically-determined for each cue dimension under investigation; in the current context, these dimensions were composed of summative indices derived through factor analytic procedures on the individual behavioral and normative beliefs (to be described below). In summary, both models assume that a linear regression model will accurately describe decision outcomes. This assumption,

from a prediction standpoint, is acceptable, given that linear models in general are robust and have been found to successfully predict judgments, even if the underlying decision processes are nonlinear (Dawes, 1979; Hoffman, 1960).

The creation of a decision analysis model, conceptually similar to social judgment theory, required a number of steps. As previously noted, the predictor cue dimensions most appropriate for such a model are the individual behavioral and normative belief ratings. However, for each contraceptive method under investigation, there was a set of twenty-nine such ratings. From an analytic standpoint, it was necessary (a) to reduce this set by eliminating redundant and less important beliefs, and (b) to determine whether a reduced belief set common to each contraceptive could be devised for the sake of comparability across methods of birth control. Thus, factor analytic procedures were utilized to identify "common factors" across contraceptives and to eliminate irrelevant and redundant beliefs. Behavioral and normative belief ratings which loaded on these common factors were simply summed to create additive indices. Thus, the individual beliefs comprising each common factor index were equally weighted. The composite scores on these additive indices represent latent predictor dimensions. The advantages to using additive indices derived through factor analysis as predictor variables is two-fold. Such indices are orthogonal and generally more reliable than single item scales (Nunnally, 1978).

Figure 2 illustrates the predictive decision factor model

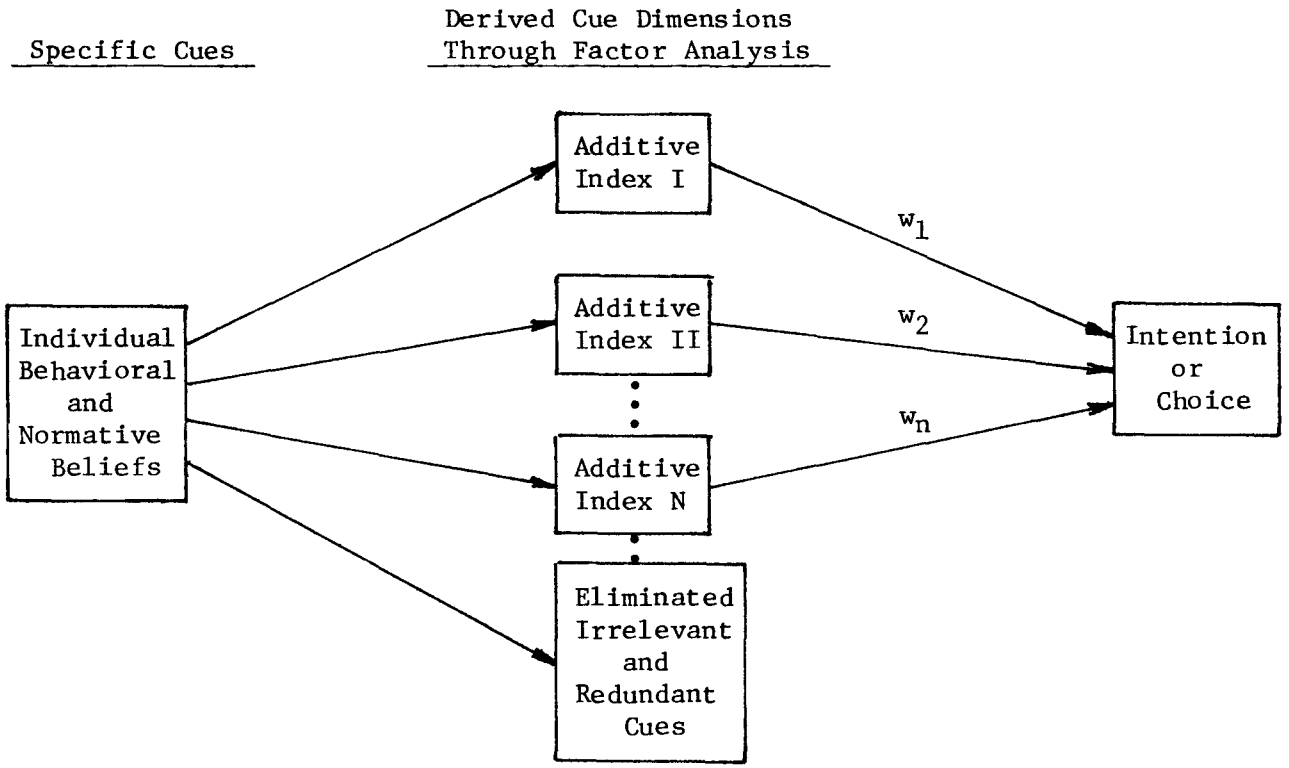


Figure 2. The predictive decision factor model

investigated in this study. To summarize, the cue dimensions which served as predictor variables were additive indices, developed through factor analyses on the set of individual behavioral and normative belief ratings. The model utilizes a linear combination of cue dimensions to predict judgments. Through multiple regression or discriminant analysis techniques, weights are empirically-determined to represent the importance of each cue dimension in predicting a criterion. (In Figure 2, these weights are represented by w_1 to w_n.)

The predictive decision factor model has two advantages over the expectancy-value approach. First, the former model is more parsimonious than the latter in the sense that fewer measures are required in the data collection stage. That is, the respondent-specific weights for individual behavioral and normative beliefs (i.e., outcome evaluations and motivation to comply ratings), essential to the expectancy-value approach, need not be obtained for the predictive decision factor model. Second, the predictor variables devised for the present decision analysis were more content-specific, descriptive and informative than the direct components used in expectancy-value theory (i.e., the attitude toward performing the behavior and subjective norm components). In general, the theoretical goal of this study was to compare the predictive utility of both models in accounting for contraceptive intentions and choice.

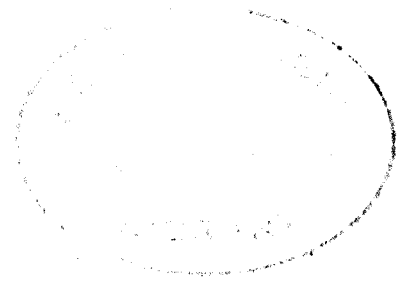
Sampling Considerations

The theoretical notions described above were investigated, via

survey techniques, within two samples of unmarried women between the ages of 18 and 24: (a) college undergradutes at two universities and (b) clients attending a family planning clinic in a large Chicago-area hospital (more details concerning the methodology and additional preliminary study samples are given in the METHOD section). The choice of a college sample was based on several factors. College women are a readily accessible group for psychological research. More importantly for current purposes, undergraduate women in general were considered likely: (a) to have had sexual experience, (b) to have a high level of contraceptive knowledge, and (c) to have tried one or more forms of birth control. Given such exposure, it was also expected that they may have developed a variety of beliefs associated with different contraceptive methods. In addition, the educational experience received at the undergraduate level was presumed to teach students problem-solving skills particularly relevant for the current study. Thus, college women represent a prime target for investigating the utility of both theoretical perspectives under investigation.

Studies of contraceptive intentions which employ samples of college women may yield results which are nongeneralizable to the population of unmarried women as a whole. Such a generalization was not the intent of this research. Rather, the study was exploratory in nature and was an attempt to fill portions of the gap in research aimed at determining whether different patterns of attitudinal and normative influences are associated with the contraceptive choices

of unmarried women of various ages, races, educational backgrounds, and so forth. Results based on the college sample were expected to provide a baseline against which other studies, utilizing similar theoretical notions, could compare and contrast their findings. In order to address the issue of the generalizability of results based on a college sample, and to determine the utility of both theoretical models for predicting contraceptive choice among other groups of unmarried women, additional survey data were also collected from a small sample of clients attending the Family Planning Clinic at Cook County Hospital in Chicago. Comparisons of the results from the two samples are presented in the RESULTS section.



METHOD

The construction of measures for the explanatory variables of interest required several phases of research. Initially, a preliminary interview was conducted with a sample of 64 college women from three universities to aid in the development of survey items to measure the Fishbein-Ajzen model components. Next, a draft survey was developed and pilot tested on 37 college women. As a result of the pilot testing, the draft survey was revised to incorporate wording changes in some survey items and to delete others. Finally, the revised survey was administered to a total of 313 respondents, including 273 undergraduate women from two universities and 40 clients attending a family planning clinic at a major Chicago metropolitan-area hospital.

Sample

The study utilized two different samples of unmarried women between the ages of 18 and 24: (a) college undergraduates in psychology courses from three Chicago-area schools including the University of Illinois at Chicago Circle (UICC), Loyola University of Chicago (LU), and Roosevelt University (RU), and (b) clients attending the Family Planning Clinic at Cook County Hospital in Chicago. Sixty-four students from the three universities participated in the preliminary interview phase (see below for a detailed description of the procedures): 25 from UICC, 26 from LU, and 13

from RU. Another sample of 37 Loyola University students completed pilot test surveys. Finally, the full-scale final survey was completed by 313 respondents: 178 women from the University of Illinois at Chicago Circle, 95 Loyola University undergraduates and 40 Family Planning Clinic clients from Cook County Hospital.

The thirteen RU students who volunteered to participate in the preliminary interview phase received bonus points toward their final grades in their introductory psychology courses. Introductory psychology students from UICC and LU are required to take part in several psychological studies as a part of their course work; thus, those who participated in the preliminary interview phase received experimental credits. The "no show" rate from each school was roughly 15-20%.

Female students in introductory social psychology courses at LU completed pilot test surveys. The investigator recruited volunteers from three different classes. Of the fifty survey forms distributed, thirty-seven were returned within a three-week period.

Introductory psychology students from UICC and LU participated in the final data collection phase of the study. Those who completed final surveys received experimental credits in partial fulfillment of their course requirements. Approximately 10% of the women who signed up for the study at UICC and 20% from LU did not show up for their experimental appointments. Four returned surveys from UICC were dropped from the final data set: two because respondents were

or had been married and two due to incomplete data (roughly 50% of the items were left blank in each case).

Lastly, clients from the Family Planning Clinic at Cook County Hospital participated in the final survey phase of the study on a strictly voluntary basis. Of the 62 eligible clients asked to participate, 20 refused. Those who refused were black and 21 years of age on the average. From a demographic perspective, these "refusals" did not differ from those who actually participated. (Another 11 clients who were approached about participation were classified as ineligible because they were married.) The surveys obtained from two clinic respondents were excluded due to incomplete data.

Of the sixty-four college women who participated in the preliminary interviews, 37.5% had never had sexual intercourse. The average age of the sample was 18.89. The majority of respondents were freshmen or sophomores (56.3% and 35.9%, respectively). In terms of religion, 47% were Catholic, 42% were of various Protestant denominations, primarily Baptist and Lutheran, and 11% claimed no formal religious affiliation. Slightly over half (56.3%) of the preliminary interview sample were White, roughly one-third (35.9%) were Black, and the remainder (7.8%) were Latino or of unknown ethnic background.

The demographic characteristics of the pilot test survey sample were somewhat different. More of these respondents (45.9%) had never had sexual intercourse. Women in this phase of the study were

also somewhat older on the average (mean age = 20.7 years) and were primarily juniors and seniors (27.0% and 45.9%, respectively). The majority were Catholic (70.3%) and White (75.7%).

College respondents who completed the final survey were 19.07 years of age on the average; family planning clinic participants were somewhat older (mean age = 20.85). Greater differences between the college and clinic respondents were revealed in other demographic comparisons. For example, 43.2% of the college women had never had sexual intercourse prior to the time of the survey, while all of the clinic sample had had such experience. The majority of the college respondents were Catholic (63.2%) and about one-fourth (27.6%) were of various Protestant denominations; in contrast, almost three-fourths of the clinic sample were Protestant (72.5%), primarily Baptist, and only 17.5% were Catholic. All of the family planning clinic clients who completed final surveys were Black, compared to only 19.0% of the college sample. The majority of the latter group were White (58.6%), only 12.8% were Latino, and the remainder were classified as "Other." In terms of education, almost all of the college respondents were freshmen or sophomores (65.6% and 24.5%, respectively). Slightly more than one-fourth (27.5%) of the clinic sample were in college at the time of the survey and, for the most part, were evenly distributed across the college years, freshmen to senior. Approximately 35% had attended college in the past, while 37.5% had never gone to college.

Survey Development: Preliminary Interviews

Utilizing procedures outlined in Ajzen and Fishbein (1980), a preliminary interview schedule was developed primarily to elicit salient beliefs about the positive and negative outcomes associated with using six contraceptives (i.e., the pill, IUD, diaphragm, condom, withdrawal, and rhythm methods), and to obtain a listing of the normative referent groups with respect to using these methods. Additional information was gathered to determine: (a) whether there are specific obstacles to obtaining certain methods (e.g., transportation problems, monetary costs), which included assessing attitudes toward getting a medical examination, going to a drugstore or pharmacy to get birth control supplies, etc., (b) why respondents used and/or had stopped using certain contraceptives in the past, and (c) whether the birth control methods chosen for study included the most popular contraceptives used by women between 18 and 24 years of age (see Appendix A for a copy of the interview schedule).

At the beginning of their interview appointment, respondents were asked to read and sign a consent form (see Appendix C) describing the study prior to actual participation; no one who appeared for an interview refused to participate. The interviews were conducted individually by the investigator and generally required between 45 and 60 minutes. Afterwards, each respondent was debriefed about the purpose of the study and how their data were to be used. All interviews were conducted during October, 1981.

Responses were tabulated into belief categories and those that

were most frequently mentioned constituted the modal or most salient beliefs for the sample (Ajzen & Fishbein, 1980). Similarly, a set of salient referent groups was determined. These analyses were utilized to develop items for the draft survey instrument described below.

Survey Development: Pilot Testing and Revision

During December of 1981, a draft survey instrument was developed for pilot testing purposes. Based on the responses obtained from the preliminary interviews, items were developed to measure 24 beliefs about the positive and negative outcomes associated with using the six methods of birth control previously mentioned. A set of 24 outcome evaluations corresponding to these behavioral beliefs was also constructed.

It was decided that the concepts of perceived opportunity for use and attitudes toward accompanying behaviors could be incorporated into the Fishbein-Ajzen model and therefore, did not represent "other attitudes" as had been originally thought. Thus, four of the twenty-four belief items were designed to assess these concepts (i.e., judgments concerning how likely it is that each method would be easy to get, would require a visit to the doctor to get, would require that supplies be obtained at a drugstore or pharmacy, and would cost a lot of money). Two of the twenty-four belief items were included to measure "classic benefits" of birth control pills (i.e., helps with hormonal or menstrual cycle problems) and condoms (i.e., helps prevent venereal disease), even though results based on the

preliminary interviews did not indicate that these attributes were salient beliefs.

In general, the section of the survey measuring behavioral beliefs was designed to obtain "attribute-wise" judgments, as is frequently employed in decision-making research (Payne et al., 1978; Svenson, 1979) rather than the "alternative-wise" judgments typically utilized in attitude measurement research. That is, respondents were presented with an attribute (e.g., prevents pregnancy effectively or reliably) and were asked to rate how likely it was that each of the six contraceptive methods possessed or was characterized by the attribute in question. Then, respondents were asked to rate each method in terms of the next attribute, and so forth. An attempt was made to balance the number of positively-phrased versus negatively-phrased behavioral belief items. The set of six contraceptive methods to be judged per statement were randomly ordered across the set of beliefs, as well as across all other sets of items measuring the Fishbein-Ajzen model components.

Six semantic-differential scales were devised to measure the attitude toward behavior component of the expectancy-value model. These items were drawn from examples presented in Ajzen and Fishbein (1980).[1]

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[1]Items tapping the normative component of Fishbein-Ajzen model were not included in the draft survey because it seemed unnecessary to pilot test them, given their straight-forward nature. Normative belief items did appear on the final survey and were based on the most frequently occurring responses given during the preliminary interviews.

A seventeen-item locus of control scale was included to measure control beliefs specific to contraceptive behaviors, as suggested in Rotter (1975). The Multidimensional Health Locus of Control Scale, developed by Wallston, Wallston and DeVellis (1978) served as the basis for item construction. The subscales were designed to tap three types of control beliefs: (a) beliefs about one's own capacity to control whether or not one becomes pregnant, (b) beliefs about the influence chance or luck has on the likelihood of pregnancy, and (c) beliefs about the role of "powerful others," specifically members of the medical profession, in determining the likelihood of pregnancy. These items were randomly ordered on one page of the survey.

The remaining set of predictor variables included measures of demographic characteristics and previous sexual and contraceptive experience. Items used to assess these variables in other studies (Fox, 1977; Hall, 1977; Zelnik & Kantner, 1980) were modified as was deemed necessary.

The dependent variables included several different measures of intention to use each of the six contraceptive methods of interest. These intention measures were designed to serve as repeated observation criteria (Fishbein & Ajzen, 1975) or, more specifically, conditional intentions. Such conditional intentions can be developed by manipulating one or more of what Ajzen and Fishbein (1980) refer to as "behavioral elements" which include action, target, context, and time. In all cases but one, the intention items included on the

draft survey assessed the same action (using a method) for the same targets (the six methods of birth control) within the same time frame (in the next six months), but varied the context of the situation (e.g., while living with one's parents, while living alone, if married, if sexual intercourse was expected to be frequent or rare). One intention item presented a different time element rather than a change in context (i.e., continuous use over a period of five years). The set of intention measures described above represented absolute judgments of intention. That is, respondents were asked to indicate their intentions to use each method under every condition specified. A relative judgment, or choice intention measure was also obtained; in this case, respondents were asked to indicate which method they would be most likely to intend to use in the next six months.

In order to make the survey applicable to all potential respondents regardless of their previous sexual experience, all items measuring the Fishbein-Ajzen model components were worded to reflect a hypothetical circumstance (e.g., "if I used method X. . .", "if I were going to have sexual intercourse in the next six months. . ."). Thus, it was possible to obtain data from women with no previous sexual experience, as well as from those who did and did not expect to have sexual intercourse in the near future.

During the second semester of the 1981-82 school year, the draft survey was pilot tested on a sample of 37 Loyola University undergraduates. Volunteers were sought in three different introductory social psychology courses. Detailed instructions for how to complete

the survey, as well as a consent form, were included in the packet of materials given to volunteers. The survey was self-administered outside of the classroom. All completed forms were returned to the investigator within a three-week period.

On the basis of statistical analyses and written comments from the pilot test respondents, several revisions were made in the draft survey. All twenty-four belief items were retained with some wording changes. Several of the items comprising the locus of control scales, some of the items measuring conditional intentions, and two of the semantic-differential scales measuring the attitude toward behavior component of the Fishbein-Ajzen model were deleted on the basis of reliability (internal consistency) analyses. Other sections of the survey were modified as deemed necessary.

Full-Scale Final Survey

One methodological consideration which has received little attention within the expectancy-value model framework is whether certain types of order effects influence results. Typically, intentions are elicited first, followed by measures of the direct and the indirect model components. The effects of (a) variations in this ordering and (b) different item sequences within a component set on obtained results need further investigation.

Four versions of the final survey were devised for the study to allow a test of two different types of order effects: (a) ordering of sets of items and (b) ordering of items within a set, resulting in

a two-by-two design for sequence effects. Sets of items measuring the Fishbein-Ajzen model components were varied in two ways as a methodological control. In one case, item sets were ordered in the sequence utilized by Fishbein and Ajzen in their studies of intention: the set of intention items were presented first, followed by scales measuring the attitude toward behavior component, outcome evaluation items, measures of the behavioral beliefs, the subjective norm component, normative belief items, and lastly, items assessing motivation to comply. The second ordering was created simply by moving the first two item sets (i.e., the intention and attitude toward the behavior measures) to the end of the series, that is, after the motivation to comply indices. The attitude toward the behavior indices always followed measures of intentions as a "control" or check for spurious order effect findings.

The ordering of items within a set was also varied in two ways to test the generalizability of within-set item sequence. In one case, items were grouped on a non-random basis according to the similarity of the issues they measured. For example, in the behavioral belief section, items assessing effects on sexual intercourse (i.e., interrupts sex, reduces spontaneity, reduces my partner's or my own pleasure) appeared in sequence. To create a second ordering of items within a set, pages of the survey were randomly ordered. This procedure had the greatest effect on the sequence of items measuring behavioral beliefs, given that only two of these types of items appeared on each page of the survey. In summary, the two-by-two

design for sequence effects provided a means for testing the impact of order and replication within an order. On all versions of the survey the locus of control scales, measures of sexual experience and previous contraceptive use, and demographics appeared (in this order) after the Fishbein-Ajzen model components.

A total of 273 undergraduate women from the University of Illinois at Chicago Circle (n = 178) and Loyola University of Chicago (n = 95) completed the final survey during the months of February through April of 1982. (See Appendix B for a copy of one version of the instrument; this form contains the ordering of item sets not used by Fishbein and Ajzen in their research and the nonrandomized grouping of similar items within a set.) Respondents from UICC completed the self-administered survey in groups of 20 to 25; Loyola University students completed the survey in groups of 2 to 10 (in some cases, Loyola respondents participated in experimental sessions on an individual basis).

An equal number of each version of the survey were placed on desks in the experimental room prior to each data collection session. Respondents were told to take a seat anywhere they wished as they arrived for their experimental appointment. Thus, in effect, the forms were randomly distributed across respondents. College respondents were asked to read and sign a consent form prior to participation. No one refused to complete a survey. A debriefing form was distributed to all respondents after each experimental session (see Appendix C for consent and debriefing forms).

A different procedure was utilized to enlist cooperation and obtain data from clients attending the Family Planning Clinic at Cook County Hospital. Staff members were concerned that many clients would be unwilling to participate and would have difficulty understanding the instructions for completing the survey, as well as the response scales themselves, if left on their own. Thus, it was decided to obtain the survey data using an interview format which dictated an individual rather than group procedure.

In addition, clinic procedures restricted the type of client who could be approached for participation. Staff members indicated that patients coming to the clinic for the first time were constantly moving from one part of the clinic to another and thus spent very little time waiting. In contrast, "return" clients with a medical problem and those who had come for an annual check-up or a refill on a prescription tended to spend considerable time waiting to be seen by doctors and nurses. Thus, it was decided that only "return" patients would be interviewed while they were waiting to be processed through the clinic. In this way, the flow of the clinic was not disrupted by the research.

Interview appointments could not be scheduled ahead of time; thus, the investigator went to a total of 19 different clinic sessions (9 "afternoon" clinics and 10 "evening" clinics) to obtain interviews during a one-month period from mid-April to mid-May of 1982. Upon arriving at the clinic, clients were required to list their name, age and whether they were a new or return patient on a

clinic sign-in sheet. As patients arrived, the investigator went down the sign-in sheet looking for return patients between 18 and 24 years of age. When such a patient was listed, the investigator called out her name and proceeded to enlist cooperation.

Clients were given a brief, verbal description of the study which paralleled the consent form read by college respondents. (At this point, clients were asked if they had ever been married. If they had been, they were thanked for their time and the interview was terminated.) Their status as a return patient between 18 and 24 years of age was also confirmed. It was further explained that the study was voluntary and that participation was not required in order to receive service in the clinic. The investigator indicated she would go through the entire survey with the client and that participation would not interfere with the patient seeing the doctor on time. Lastly, respondents were told that all the information they provided would be kept strictly confidential and that their names would not be identified with any of their responses. Then, all clients were handed a consent form (see Appendix C) to read and sign if they wished to participate. (Those who terminated their participation usually did so at this point.)

Those who agreed to participate were then given a copy of the survey upon which to record their responses. (All four versions of the survey were used with the clinic respondents as was done with the college sample.) The investigator, using her own copy of the survey, read all instructions aloud to the respondents and probed when

necessary to ensure they understood the response scales. (It was judged that only three respondents had some difficulty understanding these scales; their data were nonetheless retained.) In addition, each item was read aloud and any questions which arose were handled in a neutral manner by the investigator so as to minimize the chance of biasing responses.

During the interview, if a respondent was called to see a nurse or doctor, the investigator stopped the interview until the respondent was again available to continue. Such pauses in the interviewing process occurred frequently, not only across respondents but, in some cases, several times with the same respondent. For the most part, these interruptions did not appear to affect the overall flow of the interview. Because of such interruptions, the typical interview time was roughly 75 to 90 minutes.

Privacy was impossible to attain during these interviews. Not only was the interviewer present, but many other clients were always evident, frequently in close proximity to the respondent. However, none of the respondents seemed overly embarrassed or bothered by this lack of privacy. It is uncertain whether the obvious presence of others influenced responses in any way.

RESULTS

In general, the results presented in this manuscript are organized in the following manner. First, analyses which examine intentions to use each method of birth control under investigation (i.e., absolute judgments of intention) for the college sample are discussed, within the Fishbein-Ajzen model framework. Next, analyses which examine the college sample data within the context of the predictive decision factor model are presented. Then, analyses of the clinic sample data, which parallel the major analyses performed on the college sample, are reviewed and discussed. Comparisons of results based on the two samples are presented. Lastly, the issue of relative or choice intention is addressed in a series of comparative judgment analyses on the college sample data.

Construction of Indices for the College Sample

Prior to developing indices to measure different components of the expectancy-value model, all relevant items were scored in the manner recommended by Ajzen and Fishbein (1980). The items measuring absolute judgments of intention, the semantic-differential scales measuring the attitude toward the behavior component, the single-item subjective norm measure, the behavioral beliefs, outcome evaluations, and normative beliefs were all scored from -3 (e.g., extremely unlikely, bad) to +3 (e.g., extremely likely, good). The motivation to comply measures were scored from 1 (extremely unlikely) to 7

(extremely likely). Then, several indices measuring the Fishbein-Ajzen model components were constructed.

Six composite intention indices were computed, one for each method of birth control, by summing responses to three items measuring intention to use a particular method: (a) in the next 6 months, (b) if intercourse would occur many times in the next 6 months, and (c) if intercourse would occur few times in the next 6 months. The reliability or alpha levels for the college sample on these six three-item intention scales ranged from .89 for the rhythm method to .94 for withdrawal, as shown in Table 1.

Similarly, responses to four semantic-differential scales (i.e., good-bad, harmful-helpful, wise-foolish, and undesirable-desirable), specific to each birth control method, were summed to produce six direct "attitude toward the behavior" or AB indices. As with the composite intention measures, the reliability or alpha levels for these six AB indices were uniformly high for the college sample, ranging from .80 for the withdrawal method to .89 for the rhythm method.

According to the Fishbein-Ajzen model, the direct "attitude toward the behavior" or AB component can be estimated by summing the scores on the behavioral beliefs, each multiplied by their respective outcome evaluations (ΣBe). This summed product score is referred to as the indirect or estimated attitude toward the behavior component of the model. The 24 behavioral belief items, specific to each

Table 1

Reliabilities of the Fishbein Model Components
by Contraceptive Method (College Sample Only)

Fishbein Model Components	Contraceptive Methods					
	Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Composite Intention Index (3-item scale)	.92	.93	.93	.93	.94	.89
N =	272	271	270	271	271	270
Direct Attitude Toward Behavior Index (4-item scale)	.85	.84	.81	.83	.80	.89
N =	268	268	271	270	270	271
Indirect Attitude Toward Behavior Index (24-item scale)	.78	.69	.71	.68	.66	.68
N =	267	270	270	268	268	267
Indirect Subjective Norm Index (5-item scale)	.76	.78	.80	.77	.75	.82
N =	270	272	271	270	272	272

birth control method, were multiplied by the relevant outcome evaluations. Reliability analyses were performed on these 24-item product scores for each contraceptive method. Internal consistency levels were generally lower than they were for the composite intention and direct AB indices: Cronbach's alpha ranged from .66 for the withdrawal method to .78 for the pill. The lower internal consistency levels found for the ΣBe indices may be partially explained by the fact that this measure dealt with a wide variety of issues (e.g., messiness, effectiveness), while the other model components were more unidimensional. In accordance with the Fishbein-Ajzen model, the 24-item product scores were summed to create six indirect attitude toward the behavior indices (ΣBe), one for each contraceptive method.

Lastly, the direct subjective norm component of the Fishbein-Ajzen model (which in this study consisted of one item for each method) can be estimated by summing the scores on the normative beliefs, each multiplied by their respective motivation to comply measures (ΣNMc). This summed product score is referred to as the indirect or estimated subjective norm component of the model. Thus, the five normative belief items specific to each birth control method were each multiplied by the relevant motivation to comply item. Again, reliability analyses were computed on the college sample data for these 5-item product scores specific to each contraceptive method: Cronbach's alpha were generally high, ranging from .75 for the withdrawal method to .82 for the rhythm method (see Table 1). The 5-item product scores were summed to create six

indirect subjective norm indices, one for each contraceptive method.

Predictions of Absolute Judgments of Intention for the College Sample

Table 2 presents zero-order correlations, beta weights, and multiple correlation coefficients for predicting each composite intention index, using the Fishbein-Ajzen model component predictors specific to each contraceptive method. Consistent with the theoretical formulation of the model, the direct AB and SN measures successfully predicted intention to use each contraceptive method. The proportion of variance accounted for ranged from .39 for the IUD to .61 for the pill. Both direct components significantly contributed to the prediction of intention to use each method. These findings are consistent with those found in many other studies on a variety of topics, utilizing the expectancy-value model (Fishbein & Ajzen, 1975); however, the multiple R-squared values found here were somewhat lower than those obtained in other research.

For comparative purposes, the indirect components (i.e., ΣBe and ΣNMc) were also utilized in regression equations to predict intentions. Again, both measures significantly contributed to such predictions, and accounted for considerable proportions of the variance in the dependent measures, ranging from .42 for the IUD to .58 for the pill. The direct measures of AB and SN were slightly better predictors of intention than were their related indirect components, except in the case of predicting intention to use the IUD. In general, the regression analyses support the theoretical notions of

Table 2

Univariate and Multivariate Predictions of Intention to Use Each Contraceptive Method (College Sample Only)

Predictor Variables	Contraceptive Methods											
	Pill		IUD		Diaphragm		Condom		Withdrawal		Rhythm	
Direct Model Components	r	B	r	B	r	B	r	B	r	B	r	B
AB	.76**	.59**	.59**	.43**	.67**	.49**	.74**	.57**	.69**	.56**	.75**	.59**
SN	.63**	.27**	.52**	.27**	.60**	.31**	.64**	.27**	.54**	.25**	.62**	.25**
R		.78**		.63**		.72**		.77**		.72**		.77**
R^2		.61		.39		.51		.59		.52		.60
df		2,254		2,258		2,258		2,256		2,258		2,256
Indirect Model Components												
ΣBe	.67**	.44**	.39**	.15**	.45**	.23**	.61**	.30**	.51**	.25**	.48**	.21**
ΣNMc	.66**	.43**	.63**	.57**	.64**	.54**	.70**	.52**	.63**	.51**	.69**	.60**
R		.76**		.65**		.67**		.74**		.67**		.72**
R^2		.58		.42		.45		.54		.45		.52
df		2,254		2,258		2,258		2,256		2,258		2,256

**p <.01

the Fishbein-Ajzen model for predicting behavioral intentions.

Methodological and Psychometric Considerations in Predicting Intentions

Several methodological issues bear on the fact that the direct measures of the attitudinal and normative indices were generally more successful in predicting intentions to use each method than were their indirect counterparts. The semantic-differential items comprising the direct attitude toward the behavior component, the direct subjective norm item, and the individual normative beliefs along with their respective motivation to comply items were more similar in specificity of item wording to the intention measures than were the individual behavioral beliefs and their related outcome evaluation items (see Appendix B). Items comprising both direct components "matched" the wording of the intention items, whereas only items comprising one of the two indirect components (i.e., ΣNMc) were characterized by similar wording. Thus, the specificity of item wording may have contributed to the overall greater success that the direct components had in predicting intentions, in comparison to the indirect components. The differences in item wording may also partially account for the fact that the ΣNMc index carried a larger beta weight than the ΣBe component in all but one regression predicting intention. Lastly, it might also be argued that the direct AB had a larger beta weight than the direct SN item in all regressions predicting intention, because the former always immediately followed measures of intentions, while the latter was always more

removed from the intention items in the survey sequence.

A comparison of the sizes of the beta weights for the direct and indirect component predictors reveals a surprising reversal of the relative importance of attitudinal and normative influences on intention. As previously noted, the direct AB measure had a larger positive beta weight than the direct SN variable in each regression equation predicting intention across all six contraceptive methods. In contrast, the indirect subjective norm index (ΣNMc) had a larger positive beta weight than did the indirect attitude toward the behavior measure (ΣBe) in predicting intentions for all birth control methods, except the pill; in this case, the two indirect components were essentially of equal important. An examination of the intercorrelations among the set of four predictor variables sheds some light on this inconsistency. These intercorrelations are presented in Table 3.

The direct and indirect attitude toward the behavior indices are conceptually distinct from the direct and indirect subjective norm measures. Thus, specific patterns of intercorrelations among the Fishbein-Ajzen model components were expected. First, high correlations should be found between (a) ΣBe and AB, and (b) ΣNMc and SN for each contraceptive method. Second, lower correlations were expected between the method-specific pairs of (a) ΣBe and SN, and (b) ΣNMc and AB indices. Lastly, the correlations between the direct components and between the indirect components for each contraceptive should be lower than those outlined in the first point

Table 3

Intercorrelations Among the Fishbein Model Components by Contraceptive Method (College Sample Only)

		Direct Model Components by Contraceptive Method											
		PILL		IUD		DIAPHRAGM		CONDOM		WITHDRAWAL		RHYTHM	
		AB	SN	AB	SN	AB	SN	AB	SN	AB	SN	AB	SN
Indirect Model Components	ΣBe	.70	.53	.47	.31	.53	.41	.66	.48	.47	.41	.53	.40
	ΣNMc	.65	.73	.61	.64	.63	.72	.68	.74	.63	.70	.70	.76

Note. All correlations are significant at the .01 level.

above.

An examination of the correlations presented in Table 3 indicates that such convergent and discriminant validity was not attained to a sufficient degree. All intercorrelations among the predictor variables, across the six birth control methods, were uniformly high. In general, the highest correlations were between the two norm measures, which were highly similar in item wording, whereas, the lowest correlations were between the ΣBe and SN, components with less similar item specificity. From a convergent validity perspective, the correlations between the ΣBe and the AB measures were higher than the correlations between the ΣBe and the SN component, as expected (see the top row of correlations in Table 3). Similarly, the ΣNMc was more highly correlated with its direct counterpart than with the direct AB measure (see the second row in Table 3). Still, the off-diagonal correlations and those within each column of Table 3, representing the extent of discriminant validity in the data, are higher than would be expected. In fact, the correlations between the ΣNMc and the direct AB index are <u>higher</u> than those between the ΣBe and the direct AB measures in all cases except for the pill (see the first column listed under each method in Table 3); these results are contrary to what is expected within the framework of the expectancy-value theory.

A lack of discriminant validity was also found within each set of predictor variables. The correlations between the two direct components (i.e., AB and SN) ranged from .51 for the withdrawal

method to .66 for the condom; all such correlations were significant at the .01 level. Similarly, the correlations between the two indirect component predictors (i.e., ΣBe and ΣNMc) were highly significant across all six contraceptive methods, ranging from .41 for the IUD and diaphragm to .59 for the condom. Such multicollinearity among the predictors causes interpretative problems because the greater the intercorrelation among the predictor variables, the less the reliability of the relative importance revealed by the size of the beta weights (Cohen & Cohen, 1975; Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

In addition, the reliabilities (i.e., internal consistency) of the sets of items used to create the predictor components put an upper limit on how highly these indices could correlate and thus predict (from a regression sense) intention to use each method of birth control (Cohen & Cohen, 1975). The internal consistency of the direct AB measures was uniformly high across all six methods (see Table 1). The fact that the direct AB component (a 4-item scale) always had a larger beta weight than the direct SN measure (a 1-item scale) may have been in part due to the fact that several items are generally more reliable than a single item measure. A different circumstance applies to the indirect component predictors. The internal consistency or Cronbach's alpha level for the ΣNMc index was higher than that for the ΣBe component, across all contraceptive methods except measures of the pill; in this case, both reliabilities were high and essentially the same. The fact that the indirect subjective norm

component generally had a larger beta weight than the indirect attitude toward the behavior index may again have been due in part to the differences in the reliabilities of these indices. Thus, the apparent reversal in the relative importance of the attitudinal and normative influences on intentions to use a particular method, as evidenced by the size of the beta weights derived for the direct versus the indirect component predictor equations, may have been partially due to (a) the lack of convergent and discriminant validity among the predictor variables, and (b) variations in the level of reliability.

At least two conclusions may be drawn based on these results: (a) the measures used in this study did a poor job of tapping the conceptually distinct constructs of attitudinal and normative influences, and/or (b) the attitudinal and normative components of the model are in fact highly correlated and thus may not need to be separated in the manner suggested by Fishbein and Ajzen. The latter conclusion can be justified on the grounds that both components of the model are, in part, functions of beliefs, either about properties of the object in question or about what important others think one should and should not do with respect to the object.

It is difficult to decide which of these conclusions is generally correct. What can be concluded with some confidence, despite the problems noted above, is that both attitudinal and normative influences seem to predict intentions to use different methods of birth control. Fishbein and Ajzen might argue that the relative

contribution of each component is quite clear, given the regression results utilizing the direct measures of attitude toward the behavior and subjective norm. Still, the fact that reverse patterns occurred when parallel analyses were performed on the indirect components indicates that the relative contribution of each construct to the prediction of intentions is unclear in this data set.

An Examination of Order Effects for Survey Items

Another methodological consideration which has received little attention within the context of the Fishbein-Ajzen model is whether order effects influence results. Most studies utilizing this approach have ordered their survey items such that intentions appear first, followed by measures of the direct and the indirect components. The effects of (a) variations in this order and (b) different item sequences within a component set on obtained results need further investigation.

In the present study, order effects were examined by varying the sequence of (a) sets of items measuring different Fishbein-Ajzen model components, and (b) items within a set. These two effects have been labeled "order" and "replication," respectively. The primary difference between the two orderings of sets of items was in the placement of the intention measures: in one case, these measures appeared first, while in the other case, they were presented after the other Fishbein-Ajzen model components (note, however, the direct AB indices always immediately followed the intention measures). Two orderings of items within a set were produced: one reflected

groupings of related items and the other was essentially a random variation of items within each set. Thus, four versions of the survey were developed, manipulating the order and replication effects described above, resulting in a two-by-two sequence effect design (see the METHOD section for more details on how these survey versions were created).

It was hypothesized that if order was important: (a) order "main effects" would be found in the analyses of variance tests described below and (b) the pattern of significant results would be consistent across contraceptive methods. The replication factor was included to test the generalizability of item ordering within sets and thus, no significant results were expected. Likewise, an order by replication interaction was not expected to be significant.

Six multivariate analyses of variance, one for each contraceptive, were computed utilizing a regression sums of squares solution. The order and replication effects served as the independent variables and the five Fishbein-Ajzen model components specific to each method were the dependent variable set, including the composite intention measure, the direct attitude toward the behavior index (AB), the direct subjective norm measure (SN), the indirect attitude toward the behavior index (ΣBe), and the indirect subjective norm index (ΣNMc). Table 4 presents the significance levels of the multivariate and univariate F-values for the order by replication interaction effect, the replication main effect and the order main effect, for each contraceptive method.

Table 4

Significance of Univariate and Multivariate Tests of Sequence Effects (College Sample Only)

ORDER BY REPLICATION INTERACTION

	Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Intention	n.s.	n.s.	n.s.	n.s.	.02	n.s.
AB	n.s.	.04	n.s.	n.s.	.02	n.s.
SN	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
ΣBe	n.s.	.05	n.s.	n.s.	n.s.	n.s.
ΣNMc	n.s.	n.s.	n.s.	n.s.	.009	n.s.
Multivariate-F	n.s.	n.s.	n.s.	n.s.	.02	n.s.

REPLICATION MAIN EFFECT

	Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Intention	.01	n.s.	n.s.	n.s.	n.s.	n.s.
AB	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
SN	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
ΣBe	n.s.	.02	n.s.	n.s.	n.s.	n.s.
ΣNMc	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Multivariate-F	.01	n.s.	n.s.	n.s.	n.s.	.01

ORDER MAIN EFFECT

	Pill	IUD	Diaphram	Condom	Withdrawal	Rhythm
Intention	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
AB	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
SN	n.s.	.05	n.s.	n.s.	n.s.	n.s.
ΣBe	n.s.	.05	n.s.	n.s.	n.s.	n.s.
ΣNMc	n.s.	.02	n.s.	n.s.	n.s.	n.s.
Multivariate-F	n.s.	n.s.	n.s.	n.s.	n.s.	.05

In general, few significant results were obtained. Four of eighteen multivariate F-values reached the .05 alpha level or better. The number of significant univariate F-values ranged from zero for the diaphragm, condom, and rhythm methods to six out of fifteen possible for the IUD. Contrary to expectations, the pattern of significant results was inconsistent within and across the interaction and main effects. It was also expected that if an order effect was present, it would appear consistently across contraceptive methods, which was not the case in these analyses.

The greatest number of significant univariate results were obtained for the IUD and withdrawal methods. In the case of the IUD, preliminary interview results indicated respondents in general knew very little about this method. Thus, it is possible the respondents who completed the final survey were swayed by item sequencing, because they were unfamiliar with this method and therefore were inconsistent in their responses across and within item sets. As revealed in the preliminary interview phase, respondents generally were very familiar with what the withdrawal method was and how it worked. Thus, the same reasoning does not hold in this case. It is unclear why some types of responses concerning withdrawal were affected by variations in item sequence.

Additional analyses were performed to determine whether order and replication effects significantly affected responses. The question to be answered in these analyses was whether the relationships between different predictor variables and intentions changed as a

function of the order in which items were completed. The two direct and two indirect predictor variables (i.e., AB, SN, ΣBe, ΣNMc), specific to each contraceptive, were correlated with the method-specific intention measures for each of the four versions of the survey. Thus, there were four correlations between a specific predictor variable and intention to use a specific method, one correlation for each version of the survey. Each set of four correlations was tested for homogeneity or equality in the population using the formula provided in Cohen and Cohen (1975, pgs. 50-52).

Of the twenty-four analyses performed, four produced significant results, as shown in Table 5. Three of these four analyses were significant at the .05 level and only one was significant at the .01 level. Again results did not reveal a consistent pattern of correlations across versions of the survey or within contraceptive methods. Interestingly, there was a significant difference as a function of order for the withdrawal method on the direct attitude toward the behavior measure. Because the AB indices always immediately followed the intention measures on all four versions of the survey, an order effect would not be expected in this case. Thus, this result is probably spurious.

In general, it appears that order and replication effects as defined in this study, did not artifically influence responses. However, the design and analyses performed do <u>not</u> rule out the possibility that a "consistency" factor was operating; that is, regardless of the types of items initially completed, respondents may have

Table 5

Correlations of the Direct and Indirect Fishbein Model Components with Intentions to Use Each Contraceptive as a Function of Sequence Effects (College Sample Only)

			CONTRACEPTIVE METHODS					
			Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Direct Components	AB Form	1[a]	.73	.70	.69	.77	.84**	.84
		2	.80	.58	.75	.72	.67	.74
		3	.78	.56	.65	.77	.69	.68
		4	.74	.50	.58	.72	.54	.75
	SN Form	1	.66	.59*	.71	.73	.71	.76
		2	.70	.63	.69	.62	.49	.57
		3	.62	.53	.52	.64	.44	.59
		4	.55	.27	.47	.59	.55	.62
Indirect Components	ΣBe Form	1	.63	.36	.38	.62*	.45	.42
		2	.65	.27	.60	.65	.35	.57
		3	.68	.50	.42	.44	.55	.29
		4	.72	.33	.38	.75	.64	.63
	ΣNMc Form	1	.62	.70	.71	.78	.76*	.76
		2	.74	.63	.71	.66	.60	.65
		3	.59	.63	.55	.68	.48	.69
		4	.70	.55	.53	.68	.69	.76

*p <.05
**p <.01

[a]Forms 1 and 2 represent the ordering of item sets not used by Fishbein and Ajzen, and the "grouped" versus random ordering of items within a set, respectively; Forms 3 and 4 represent the ordering of item sets used by Fishbein and Ajzen, and the "grouped" versus random ordering of items within a set, respectively (See the Method section).

Note. The asterisks indicate that the corresponding set of four correlations are not homogenous.

been motivated to give consistent responses throughout the survey.

Regression analyses, predicting intentions to use each method from the Fishbein-Ajzen component predictor variables, were performed on groups defined by which of the four versions of the survey were completed. These analyses are presented in Table 6. Because versions of the survey were randomly distributed to respondents, one can view the analyses presented in this table as an application of the "split sample" technique for testing the stability or reliability of the regression results presented earlier (Nunnally, 1978).

For the most part, the pattern of results suggests there was a modest level of stability or reliability. Some inconsistencies were found in the relative size and significance of beta weights, which may have been due to the small sample size per version of the survey, the multicollinearity among the predictor variables and other methodological problems noted in the previous subsection. The most consistent results were obtained for the pill, perhaps because respondents were very familiar with this method. Results for the other five methods were less consistent, but for the most part, the pattern of results generally paralleled those obtained for the pill.

Effects of Sexual Experience and Previous Use on Intentions for the College Sample

Expectancy-value theory proposes that variables "external" to the model (e.g., other attitudes, demographics, personality factors, etc.) affect intentions and thus behavior only indirectly through

Table 6

Univariate and Multivariate Predictions of Intentions to Use Each Contraceptive As a Function of Sequence Effects (College Sample Only)

INTENTION TO USE PILL

		Total Sample		Form 1[a]		Form 2		Form 3		Form 4	
		r	B	r	B	r	B	r	B	r	B
Direct Components	AB	.76**	.59**	.73**	.52**	.80**	.62**	.78**	.65**	.74**	.61**
	SN	.63**	.27**	.66**	.33**	.70**	.25*	.62**	.20	.55**	.24*
	R		.78**		.77**		.82**		.80**		.76**
	R^2		.61		.60		.68		.64		.58
	df		2,254		2,63		2,59		2,62		2,61
Indirect Components	ΣBe	.67**	.44**	.63**	.39**	.65**	.35**	.68**	.51**	.72**	.48**
	ΣNMc	.66**	.43**	.62**	.38**	.74**	.55**	.59**	.35**	.70**	.43**
	R		.76**		.70**		.79**		.74**		.81**
	R^2		.58		.48		.63		.55		.65
	df		2,254		2,63		2,59		2,62		2,61

INTENTION TO USE IUD

		Total Sample		Form 1		Form 2		Form 3		Form 4	
		r	B	r	B	r	B	r	B	r	B
Direct Components	AB	.59**	.43**	.70**	.55**	.58**	.40**	.56**	.37**	.50**	.54**
	SN	.52**	.27**	.59**	.24*	.63**	.48**	.53**	.29*	.27*	-0.06
	R		.63**		.73**		.73**		.60**		.51**
	R^2		.39		.53		.53		.36		.26
	df		2,258		2,64		2,62		2.61		2,62
Indirect Components	ΣBe	.39**	.15**	.36**	.09	.27*	.04	.50**	.25*	.33**	.17
	ΣNMc	.63**	.57**	.70**	.67**	.63**	.61**	.63**	.51**	.55**	.49**
	R		.65**		.71**		.63**		.67**		.57**
	R^2		.42		.50		.40		.44		.33
	df		2,258		2,64		2,62		2,61		2,62

Table 6 (Continued)

INTENTION TO USE DIAPHRAGM

		Total Sample		Form 1		Form 2		Form 3		Form 4	
		r	B	r	B	r	B	r	B	r	B
Direct Components	AB	.67**	.49**	.69**	.39**	.75**	.53**	.65**	.52**	.58**	.47**
	SN	.60**	.31**	.71**	.44**	.69**	.37**	.52**	.24*	.47**	.21
	R		.72**		.76**		.81**		.68**		.61**
	R^2		.51		.57		.66		.46		.37
	df		2,258		2,63		2,61		2,64		2,61
Indirect Components	ΣBe	.45**	.23**	.38**	.05	.60**	.29**	.42**	.31**	.38**	.23*
	ΣNMc	.64**	.54**	.71**	.69**	.71**	.55**	.55**	.48**	.53**	.46**
	R		.67**		.71**		.75**		.63**		.58**
	R^2		.45		.51		.57		.40		.33
	df		2,258		2,63		2,61		2,64		2,61

INTENTION TO USE CONDOM

		Total Sample		Form 1		Form 2		Form 3		Form 4	
		r	B	r	B	r	B	r	B	r	B
Direct Components	AB	.74**	.57**	.77**	.50**	.72**	.54**	.77**	.63**	.72**	.59**
	SN	.64**	.27**	.73**	.38**	.62**	.28*	.64**	.19	.59*	.22*
	R		.77**		.82**		.75**		.78**		.75**
	R^2		.59		.67		.56		.61		.56
	df		2,256		2,63		2,60		2,62		2,62
Indirect Components	ΣBe	.61**	.30**	.62**	.19	.65**	.41**	.44**	.15	.75**	.54**
	ΣNMc	.70**	.52**	.78**	.66**	.66**	.43**	.68**	.61**	.68**	.30**
	R		.74**		.79**		.74**		.70**		.78**
	R^2		.54		.63		.55		.48		.60
	df		2,256		2,63		2,60		2,62		2,62

Table 6 (Continued)

INTENTION TO USE WITHDRAWAL

		Total Sample		Form 1		Form 2		Form 3		Form 4	
		r	B	r	B	r	B	r	B	r	B
Direct Components	AB	.69**	.56**	.84**	.67**	.67**	.57**	.69**	.61**	.54**	.35**
	SN	.54**	.25**	.71**	.23*	.49**	.21	.44**	.21*	.55**	.36**
	R		.72**		.85**		.70**		.72**		.62**
	R^2		.52		.73		.49		.52		.39
	df		2,258		2,63		2,60		2,64		2,62
Indirect Components	ΣBe	.51**	.25**	.45**	.11	.35**	.11	.55**	.41**	.64**	.37**
	ΣNMc	.63**	.51**	.76**	.71**	.60**	.55**	.48**	.26*	.69**	.49**
	R		.67**		.77**		.60**		.59**		.76**
	R^2		.45		.59		.36		.35		.57
	df		2,258		2,63		2,60		2,64		2,62

INTENTION TO USE RHYTHM

		Total Sample		Form 1		Form 2		Form 3		Form 4	
		r	B	r	B	r	B	r	B	r	B
Direct Components	AB	.75**	.59**	.84**	.61**	.74**	.62**	.68**	.51**	.75**	.60**
	SN	.62**	.25**	.76**	.32**	.57**	.21*	.59**	.32**	.62**	.24*
	R		.77**		.87**		.76**		.73**		.77**
	R^2		.60		.76		.58		.53		.60
	df		2,256		2,64		2,61		2,63		2,59
Indirect Components	ΣBe	.48**	.21**	.42**	.06	.57**	.33**	.29*	.12	.63**	.27*
	ΣNMc	.69**	.60**	.76**	.73**	.65**	.49**	.69**	.65**	.76**	.59**
	R		.72**		.76**		.71**		.70**		.78**
	R^2		.52		.58		.51		.49		.61
	df		2,256		2,64		2,61		2,63		2,59

[a]See the note on Table 5 for a description of the form variables.

their influence on (a) behavioral or normative beliefs, outcome evaluations, and/or motivations to comply with salient referent groups, or (b) the relative importance of AB and SN (Ajzen & Fishbein, 1980; Fishbein, 1979). In the present study, two related external variables of particular interest were sexual experience and previous use of each contraceptive method under investigation. Several investigators (Bentler & Speckart, 1979; Sherman et al., 1982) have explored the role of direct experience in behavioral prediction, within the framework of the expectancy-value model, and have found that variations in experience differentially predict intentions and behavior. Fazio and Zanna (1978) argue that the attitude-behavior relationship is moderated by experience; that is, direct experience with the target object or behavior in the past will enhance attitude-behavior consistency. Thus, it was hypothesized that women who had never had intercourse (i.e., virgins) may differ in important ways from sexually experienced women (i.e., nonvirgins, or those who had ever had sexual intercourse prior to the time of the survey). It can be argued that virgins are, on the whole, in a "pre-decisional" phase with respect to both the questions of whether to have sexual intercourse and which, if any, contraceptive they should use to prevent pregnancy. Thus, it might be expected that virgins may have different intentions and/or beliefs about various contraceptives in comparison to nonvirgins, because of differences in sexual and contraceptive experience across the two groups.

In terms of experience with a particular contraceptive, nonvirgins can be divided into several groups: (a) current users, (b) recent users who are not currently contracepting but have not changed to a new method, (c) switchers, or former users who have changed to a different method, and (d) never users of the contraceptive in question. Again, on the basis of current and past experiences, differences among these groups of nonvirgins, in terms of intentions, beliefs, and so forth, may also be expected.

The nonvirgins in the college sample were divided into the four types of experience groups defined above on the basis of their responses to a series of questions concerning their birth control use history (see Appendix B). Then, five-category variables, one for each contraceptive, representing both sexual experience and previous use status (e.g., virgins versus nonvirgin-current users, nonvirgin-recent but no new method users, nonvirgin-switchers, and nonvirgin-never users) were crossed with the appropriate dichotomized composite intention measure. (The composite intention measure for each contraceptive was dichotomized by classifying all respondents with a score of -1 or less into the "not intend" group, while those scoring +1 or greater fell into the "intend" group; those scoring zero were excluded altogether.)

An examination of cell frequencies revealed that further collapsing of some experience variable categories was needed, across all six birth control methods, in order to attain reasonable cell sizes for subsequent analyses. For the pill, condom, withdrawal,

and rhythm methods, those classified as virgins, nonvirgin-switchers, and nonvirgin-never users were for the most part evenly distributed across the intend and not intend categories; on the other hand, 85% or more of the current and "recent, but no new method" users fell into the "intend" category; thus, there were only three or fewer of these respondents within the "not intend" group.

Analyses were performed for the pill, condom, withdrawal, and rhythm methods to determine whether certain nonvirgin-user groups could be legitimately collapsed into a single "ever user" category. Separate one-way ANOVAs were performed for each contraceptive method on individual behavioral and normative belief, outcome evaluation, and motivation to comply items for the groups of nonvirgin-intenders who were classified as "current users," "recent users who had not changed to a new method", or "switchers." There was some tendency for the groups to give different ratings of each method; however, patterns of results were inconsistent, perhaps due to the small number of respondents in each category. Overall, few significant differences were obtained across these groups. Thus, it was decided to create a three-category experience variable, comprised of virgins versus nonvirgin-ever users versus nonvirgin-never users, for these four methods. (Throughout the remainder of this manuscript, references to ever and never users apply to the nonvirgins only.)

A different experience breakdown was dictated by the data for the IUD and diaphragm methods. There were very few respondents who had ever used either of these methods (i.e., three and eleven

respondents, respectively). All such ever users intended to use the method in the near future; thus, the "ever user by not intend" categorization produced an "empty cell" in each case. Therefore, the experience variable for the IUD and diaphragm was composed of virgins versus nonvirgins in all subsequent analyses.

In order to partially examine the effect of sexual experience and previous use on intentions, simple one-way ANOVAs (or t-tests, where appropriate) were utilized. These results are presented in Table 7. As expected, significant group differences were obtained. With regard to intentions to use the pill, condom, withdrawal, and the rhythm method, there was a general tendency for the ever users to have a positive intention to use the method with which they had had previous experience. Virgins had positive intentions to use the pill and condom but did not intend to use the IUD, diaphragm, withdrawal, and rhythm methods. Never users, on the average, did not intend to use a contraceptive with which they had no previous experience. Lastly, nonvirgins, as a group, did not intend to use the IUD or diaphragm.

Regression equations, examining the impact of the direct and indirect Fishbein-Ajzen model component predictors, were calculated for each experience group (see Table 8). In general, the pattern of results across experience groups and contraceptives is similar to findings previously reported for the total college sample. The direct components (i.e., AB and SN) tended to be more successful in predicting intentions than were the indirect components (i.e., ΣBe

Table 7

Mean Intentions to Use Each Contraceptive
by Experience Groups (College Sample Only)

	EXPERIENCE GROUPS		
		Nonvirgins	
Intention to Use	Virgins	Never Users	Ever Users
PILL[1]	2.71	-1.29	5.94
(N =)	(117)	(83)	(72)
		F(2,269) = 30.29**	
CONDOM[2]	2.43	-1.41	2.78
(N =)	(118)	(65)	(88)
		F(2,268) = 10.69**	
WITHDRAWAL[3]	-4.76	-6.18	1.23
(N =)	(117)	(68)	(86)
		F(2,268) = 47.13**	
RHYTHM[4]	-1.30	-4.64	1.36
(N =)	(117)	(98)	(55)
		F(2,267) = 20.90**	

Table 7 (Continued)

	Virgins		Nonvirgins
IUD (N =)	-4.71 (117)		-5.51 (154)
		$t(269) = 1.36$, n.s.	
DIAPHRAGM (N =)	-2.34 (116)		-2.62 (154)
		$t(268) = 0.40$, n.s.	

[1]All three groups significantly differed from each other at the .05 level according to Scheffe's post hoc procedure.

[2]Virgins and Ever Users significantly differed from Never Users but did not differ from each other at the .05 level according to Scheffe's post hoc procedure.

[3]Ever Users significantly differed from both Never Users and Virgins, while the latter two groups did not differ from each other at the .05 level according to Scheffe's post hoc procedure.

[4]All three groups significantly differed from each other at the .05 level according to Scheffe's post hoc procedure.

Table 8

Univariate and Multivariate Predictions of Intention to Use Each Contraceptive by Sexual Experience and Previous Use (College Sample Only)

	CONTRACEPTIVE METHODS											
	PILL						CONDOM					
Predictor Variables	Virgins		Ever Users		Never Users		Virgins		Ever Users		Never Users	
Direct Model Components	r	B	r	B	r	B	r	B	r	B	r	B
AB	.78**	.47**	.67**	.55**	.67**	.61**	.72**	.54**	.72**	.55**	.71**	.59**
SN	.78**	.47**	.52**	.31**	.45**	.10	.62**	.31**	.63**	.25*	.58**	.18
R		.86**		.73**		.68**		.76**		.75**		.72**
R^2		.74		.53		.46		.58		.56		.53
df		2,110		2,65		2,73		2,112		2,81		2,57
Indirect Model Components												
ΣBe	.62**	.33**	.54**	.40**	.65**	.49**	.58**	.28**	.65**	.38**	.47**	.23*
ΣNMc	.72**	.54**	.52**	.36**	.59**	.39**	.69**	.53**	.67**	.44**	.67**	.57**
R		.77**		.64**		.74**		.73**		.73**		.70**
R^2		.59		.41		.55		.53		.54		.49
df		2,110		2,65		2,73		2,112		2,81		2,57

*p <.05

**p <.01

Table 8 (Continued)

CONTRACEPTIVE METHODS

	WITHDRAWAL						RHYTHM					
Predictor Variables	Virgins		Ever Users		Never Users		Virgins		Ever Users		Never Users	
Direct Model Components	r	B	r	B	r	B	r	B	r	B	r	B
AB	.68**	.54**	.66**	.48**	.63**	.60**	.72**	.44**	.74**	.65**	.70**	.63**
SN	.54**	.27**	.58**	.31**	.29*	.09	.71**	.42**	.50**	.17	.47**	.15
R	.71**		.71**		.64**		.79**		.75**		.71**	
R^2	.51		.50		.41		.62		.56		.51	
df	2,111		2,79		2,62		2,111		2,47		2,92	
Indirect Model Components												
ΣBe	.39**	.18*	.54**	.25*	.34**	.23	.40**	.14*	.31*	.04	.52**	.35**
ΣNMc	.62**	.54**	.66**	.53**	.37**	.28*	.74**	.68**	.66**	.64**	.54**	.39**
R	.64**		.69**		.43**		.75**		.66**		.63**	
R^2	.41		.48		.18		.56		.43		.39	
df	2,111		2,79		2,62		2,111		2,47		2,92	

Table 8 (Continued)

	CONTRACEPTIVE METHODS							
	IUD				DIAPHRAGM			
Predictor Variables	Virgins		Nonvirgins		Virgins		Nonvirgins	
Direct Model Components	r	B	r	B	r	B	r	B
AB	.63**	.47**	.55**	.39**	.67**	.52**	.68**	.48**
SN	.54**	.28**	.50**	.27**	.57**	.22*	.62**	.35**
R		.67**		.60**		.69**		.74**
R^2		.45		.36		.48		.55
df		2,111		2,144		2,109		2,146
Indirect Model Components								
ΣBe	.44**	.17*	.38**	.16*	.57**	.33**	.37**	.16*
ΣNMc	.65**	.57**	.63**	.57**	.68**	.53**	.61**	.55**
R		.67**		.65**		.75**		.63**
R^2		.44		.43		.56		.40
df		2,111		2,144		2,109		2,146

and ΣNMc). For the most part, both direct and indirect attitudinal and normative components significantly contributed to the prediction of intentions to use each method across the experience groups. (Note, however, that the SN component frequently did not significantly contribute to the prediction of intentions to use certain contraceptives for the never users.) As before, there was generally a reversal in the relative sizes of the beta weights for the direct component predictors in comparison to their indirect counterparts within each experience group across contraceptives. Again, this inconsistency in the results may have been due in part to several methodological factors and psychometric problems previously discussed. Thus, it is unclear whether the attitudinal or the normative component of the model is the most important predictor of intentions for each of the experience groups. (The contribution of experience to the prediction of intentions is discussed further in the next subsection and is addressed again in the CONCLUSIONS section.)

In general, the direct component predictors (i.e., AB and SN) tended to account for more variance in the intention measures for the virgins (ranging from .74 for the pill to .51 for withdrawal), followed by the ever users (ranging from .56 for the condom and rhythm methods to .50 for withdrawal), and accounted for the least variance within the never user subgroups (ranging from .53 for the condom to .41 for withdrawal). The patterns reflecting variance accounted for in the regression equations utilizing the indirect component predictors (i.e., ΣBe and ΣNMc) were not as consistent

across the experience groups.

Sexual experience and previous use of each contraceptive are only two of many external variables which may affect intentions and subsequent behavior. The following section examines whether external variables, in addition to experience, have a direct impact on intentions, rather than an indirect effect as hypothesized in expectancy-value theory.

An Examination of Whether "External" Variables Improve the Prediction of Intentions

As previously noted, expectancy-value theory proposes that variables "external" to the model (e.g., other attitudes, demographics, personality factors) affect intentions and thus behavior only indirectly through their influence on (a) behavioral or normative beliefs, outcome evaluations, and/or motivations to comply with salient referent groups, or (b) the relative importance of AB and SN (Ajzen & Fishbein, 1980; Fishbein, 1979). As suggested in Fishbein (1979), it was expected that external variables would not significantly increase the predictability of intentions over and above the variance which could be accounted for by the direct model components (i.e., AB and SN). In order to test this hypothesis, regressions were performed on intentions to use each contraceptive method examining the increment in the multiple R-squared value, when external variables were individually added to the equation containing the direct model components as predictors. Fourteen external variables were tested, representing major demographics (e.g., race, religion,

age, estimated socio-economic status), sexual experience and previous use of the method in question, expectations regarding future sexual relations, and three locus of control measures. Dummy variables were used when appropriate. Analyses utilized to test increments in the multiple R-squared value followed procedures outlined in Cohen and Cohen (1975). A detailed description of how each external variable was coded can be found in Appendix D.

Tables 9 through 14 present the results for each birth control method, testing the increment in the multiple R-squared value when each of fourteen external variables were individually added to the regression equations predicting intentions, which contained the direct AB and SN components as predictors. An examination of all six tables reveals that, for the most part, external variables did not markedly improve the prediction of intentions beyond that achieved by the direct model components; thus, the expectancy-value hypothesis regarding the irrelevance of external variables to prediction was partially supported.

Because of the number of analyses performed, only those results which reached the .01 alpha level, or which reached the .05 alpha level for two or more contraceptive methods were considered significant and are discussed in this section. The reader is referred to the accompanying tables for a more detailed examination of other trends in the data.

Sexual experience and previous use of a method accounted for a

Table 9

Increments in Prediction of Intention to Use the Pill Due to Each External Variable (College Sample Only)

	Multiple Regression Results		
Predictor Variables[a]	R^2	R^2 change	df for R^2 change
AB + SN alone	.625	--	--
With: Race	.632	.007	3,227
Religion	.627	.003	2,228
Strength of Religious Belief	.625	.000	1,229
Religion by Strength of Belief Interaction[b]	.631	.003	2,225
Current Year in School	.627	.002	1,229
Current Age	.629	.004	1,229
Estimated Socio-Economic Status	.631	.006*	1,229
Current Living Situation	.631	.006	2,228
Estimated Number of Times Will Have Sex in the Next 6 Months	.625	.000	1,229
How Likely Sex Will Be Planned in the Next 6 Months	.625	.000	1,229
Sexual Experience and Previous Use of Pill	.683	.058**	2,228
Locus of Control: Chance	.627	.003	1,229
Locus of Control: Personal Control	.630	.005	1,229
Locus of Control: Medical Personnel	.625	.001	1,229

[a]External variables are described in Appendix D.

[b]The hypothesis tested was whether these two interaction dummy variables significantly incremented R-squared after both Fishbein components and the main effect variables for religion and strength of religious belief were in the equation predicting intention.

*p <.05
**p <.01

Table 10

Increments in Prediction of Intention to Use the IUD Due to Each External Variable (College Sample Only)

Predictor Variables[a]	Multiple Regression Results		
	R^2	R^2 change	df for R^2 change
AB + SN alone	.403	--	--
With: Race	.408	.004	3,232
Religion	.422	.019*	2,233
Strength of Religious Belief	.410	.007	1,234
Religion by Strength of Belief Interaction[b]	.425	.001	2,230
Current Year in School	.407	.004	1,234
Current Age	.406	.003	1,234
Estimated Socio-Economic Status	.406	.003	1,234
Current Living Situation	.411	.007	2,233
Estimated Number of Times Will Have Sex in the Next 6 Months	.411	.007	1,234
How Likely Sex Will Be Unplanned in the Next 6 Months	.403	.000	1,234
Sexual Experience	.410	.007	1,234
Locus of Control: Chance	.405	.002	1,234
Locus of Control: Personal Control	.405	.002	1,234
Locus of Control: Medical Personnel	.405	.002	1,234

*p <.05
**p <.01

[a]External variables are described in Appendix D.

[b]The hypthesis tested was whether these two interaction dummy variables significantly incremented R-squared after both Fishbein components and the main effect variables for religion and strength of religious belief were in the equation predicting intention.

Table 11

Increments in Prediction of Intention to Use the Diaphragm Due to Each External Variable (College Sample Only)

Predictor Variables[a]	Multiple Regression Results R^2	R^2 change	df for R^2 change
AB + SN alone	.523	--	--
With: Race	.538	.015	3,231
Religion	.526	.003	2,232
Strength of Religious Belief	.524	.001	1,233
Religion by Strength of Belief Interaction[b]	.528	.002	2,229
Current Year in School	.523	.000	1,233
Current Age	.527	.004	1,233
Estimated Socio-Economic Status	.524	.001	1,233
Current Living Situation	.537	.014*	2,232
Estimated Number of Times Will Have Sex in the Next 6 Months	.532	.009*	1,233
How Likely Sex Will be Unplanned in the Next 6 Months	.525	.002	1,233
Sexual Experience	.525	.002	1,233
Locus of Control: Chance	.523	.000	1,233
Locus of Control: Personal Control	.523	.000	1,233
Locus of Control: Medical Personnel	.523	.000	1,233

*p <. 05
**p <. 01

[a]External variables are described in Appendix D.

[b]The hypothesis tested was whether these two interaction dummy variables significantly incremented R-squared after both Fishbein components and the main effect variables for religion and strength of religious belief were in the equation predicting intention.

Table 12

Increments in Prediction of Intention to Use the Condom Due to Each External Variable (College Sample Only)

Predictor Variables[a]	Multiple Regression Results R^2	R^2 change	df for R^2 change
AB + SN alone	.590	--	--
With: Race	.605	.016*	3,228
Religion	.593	.003	2,229
Strength of Religious Belief	.594	.005	1,230
Religion by Strength of Belief Interaction[b]	.606	.010	2,226
Current Year in School	.590	.001	1,230
Current Age	.590	.000	1,230
Estimated Socio-Economic Status	.597	.007*	1,230
Current Living Situation	.602	.012*	2,229
Estimated Number of Times Will Have Sex in Next 6 Months	.595	.005	1,230
How Likely Sex Will Be Unplanned in Next 6 Months	.590	.001	1,230
Sexual Experience and Previous Use of Condom	.601	.011*	2,229
Locus of Control: Chance	.593	.003	1,230
Locus of Control: Personal Control	.590	.000	1,230
Locus of Control: Medical Personnel	.590	.000	1,230

*p <. 05
**p <. 01

[a]External variables are described in Appendix D.

[b]The hypothesis tested was whether these two interaction dummy variables significantly incremented R-squared after both Fishbein components and the main effect variables for religion and strength of religious belief were in the equation predicting intention.

Table 13

Increments in Prediction of Intention to Use Withdrawal Due to Each External Variable (College Sample Only)

Predictor Variables[a]	Multiple Regression Results R^2	R^2 change	df for R^2 change
AB + SN alone	.517	--	--
With: Race	.523	.006	3,230
Religion	.520	.003	2,231
Strength of Religious Belief	.518	.001	1,232
Religion by Strength of Belief Interaction[b]	.530	.007	2,228
Current Year in School	.520	.003	1,232
Current Age	.520	.004	1,232
Estimated Socio-Economic Status	.527	.010*	1,232
Current Living Situation	.522	.006	2,231
Estimated Number of Times Will Have Sex in Next 6 Months	.519	.002	1,232
How Likely Sex Will Be Unplanned in Next 6 Months	.521	.004	1,232
Sexual Experience and Previous Use of Withdrawal	.633	.116**	2,231
Locus of Control: Chance	.521	.005	1,232
Locus of Control: Personal Control	.518	.002	1,232
Locus of Control: Medical Personnel	.519	.002	1,232

*p <. 05
**p <. 01

[a]External variables are described in Appendix D.

[b]The hypothesis tested was whether these two interaction dummy variables significantly incremented R-squared after both Fishbein components and the main effect variables for religion and strength of religious belief were in the equation predicting intention.

Table 14

Increments in Prediction of Intention to Use
Rhythm Due to Each External Variable (College Sample Only)

Predictor Variables[a]	Multiple Regression Results R^2	R^2 change	df for R^2 change
AB + SN alone	.585	--	--
With: Race	.586	.001	3,229
Religion	.586	.001	2,230
Strength of Religious Belief	.585	.000	1,231
Religion by Strength of Belief Interaction[b]	.589	.003	2,227
Current Year in School	.588	.003	1,231
Current Age	.588	.003	1,231
Estimated Socio-Economic Status	.587	.002	1,231
Current Living Situation	.587	.002	2,230
Estimated Number of Times Will Have Sex in Next 6 Months	.585	.000	1,231
How Likely Sex Will Be Unplanned in Next 6 Months	.589	.004	1,231
Sexual Experience and Previous Use of Rhythm	.607	.021**	2,230
Locus of Control: Chance	.602	.017**	1,231
Locus of Control: Personal Control	.586	.001	1,231
Locus of Control: Medical Personnel	.585	.000	1,231

*p <.05
**p <.01

[a]External variables are described in Appendix D.

[b]The hypothesis tested was whether these two interaction dummy variables significantly incremented R-squared after both Fishbein components and the main effect variables for religion and strength of religious belief were in the equation predicting intention.

significant proportion of the residual variance in the dependent measures for the pill, condom, withdrawal, and rhythm methods. (Similar results may have been obtained for the IUD and diaphragm if there had been enough respondents to divide nonvirgins into ever and never users.) The previous subsection described how these experience groups differed in their intentions to use each method. To summarize these findings, ever users intended to use methods with which they had had previous experience. Virgins intended to use the pill and condom, but did not intend to use any of the other four methods. Never users of a method did not intend to use that method.

Parental socio-economic status also accounted for a significant proportion of the residual variance in the dependent measures for the pill, condom, and withdrawal methods. The lower the respondents' socio-economic status, the more likely they were to intend to use the pill ($r = -.16$ and beta $= -.08$); whereas, the higher their socio-economic status, the more likely respondents were to intend to use condoms or withdrawal ($r = .13$ and beta $= .08$ for condoms; $r = .13$ and beta $= .10$ for withdrawal).

It was believed that the socio-economic index created for this study may have been a redundant measure of respondents' race, sexual experience and previous use, or all three. Thus, several regressions were computed to examine this possibility. As expected, it was found that socio-economic status was no longer significant when added after the direct model components, sexual experience, and previous use were in the equation predicting intentions to use the

pill and withdrawal. Socio-economic status was still significant when added after these measures were in the equation predicting intentions to use condoms; however, the significance of its contribution to prediction when added to the same equation with race included was negligible; whites were more likely to intend to use condoms than were blacks.

Respondents' current living situation also accounted for a significant proportion of the residual variance in the dependent measures for the condom and diaphragm. Respondents who lived alone were somewhat more likely to intend to use condoms than those who lived with relatives or nonrelatives (mean intentions equal 3.73, 1.64, and 1.25, respectively; the F-value for the difference in group means was not significant). Similarly, respondents who lived alone were likely to intend to use diaphragms, but those who lived with nonrelatives or with relatives were unlikely to intend to use this method (mean intentions equal 1.36, -1.93, and -2.88, respectively; the F-value for differences in group means was significant at the .05 level; however, the Scheffe a posteriori range test revealed no significant group differences).

Lastly, the locus of control subscale measuring beliefs that change or luck determine pregnancy outcomes significantly contributed to the prediction of intentions to use the rhythm method, over and above the variance accounted for by the direct model components. The stronger the belief in the role of chance, the more likely respondents were to intend to use rhythm ($r = .25$ and beta = .13).

In general, it was found that external variables did not markedly improve the prediction of intentions beyond that achieved by the direct model components. The overall patterns of significant and marginal, but nonsignificant, results were somewhat unique for each contraceptive method. Some variables (e.g., race with respect to predicting intentions to use the diaphragm and the religion by strength of religious belief interaction in the prediction of intention to use condoms) may have reached statistical significance if the sample size had been larger.

Sexual experience and previous use were the only external variables which produced significant results across four of the six contraceptives studied. It was argued that previous use may have also produced significant results for the IUD and diaphragm, if there had been enough respondents to treat nonvirgins as ever and never users, instead of using a more general sexual experience variable (i.e., virgins versus nonvirgins) for analyses of these methods.

Other external variables tended to be significant at the .05 alpha level for only one method or frequently could be discounted due to their relationships with the sexual experience and previous use variables. The experience variables explained an additional 1% to 12% of the residual variance in intentions, whereas the other external variables accounted for at most 2% of the residual variance in the dependent measures. Thus, it was decided that experience, as previously hypothesized, was the only external variable warranting further investigation.

Fishbein (1979) would argue that if one finds a significant intention-external variable relationship, the external variable must also be related to one or more of the determinants of intention, for example, specific behavioral or normative beliefs. That is, one should be able to identify the intervening model components which link the external variable to intentions. Evidence supporting his argument, with respect to sexual experience and previous use is discussed in the next subsection. On the basis of those analyses, it was evident that virgins, ever users, and never users held differing beliefs, evaluations, and so forth which Fishbein would hypothesize lead to their differing intentions. It might be expected that if additional analyses were performed, examining individual beliefs, evaluations and motivations to comply, across respondents classified according to other external variable categorizations, they would similarly reveal significant group differences. Several other explanations for why external variables significantly improved the prediction of intentions beyond that achieved by the direct model components are discussed in detail in the CONCLUSIONS section.

Why College Respondents Differ in Their Intentions: Overview of Analyses

Once it is determined that both attitudinal and normative influences affect intentions, then it is necessary to examine individual behavioral and normative beliefs, outcome evaluations, and motivations to comply with salient referent groups to gain an understanding of why, for example, intenders differ from nonintenders (Ajzen &

Fishbein, 1980; Fishbein, 1979; Fishbein & Ajzen, 1975). In this study, differences among beliefs, evaluations and so forth, across groups defined by their sexual experience and previous use of each method were also of interest. As described in the previous sections, these groups differ with respect to intentions to use each contraceptive; how they differ across the sets of beliefs, evaluations, and motivations to comply may explain why this is so. Thus, a series of two-by-three and two-by-two multivariate analyses of variance were performed to address these issues.

One factor in these analyses was defined by a two-level intention variable. For each contraceptive, intenders were defined as those who scored +1 or greater on the composite intention index, while nonintenders were defined as those who scored -1 or less; respondents who scored zero or were neutral on the intention measures were excluded from these analyses. The second factor was composed of either a three-level or two-level experience variable. For the pill, condom, withdrawal, and rhythm methods, a three-level factor was created, representing virgins versus ever users versus never users. For the IUD and diaphragm, a two-level sexual experience variable (i.e., virgins versus nonvirgins) was utilized. (See the Effects of Sexual Experience and Previous Use on Intentions for the College Sample subsection for an explanation of why these sexual experience and prior use categorizations were developed in this manner.)

For each contraceptive method under investigation, four MANOVA

analyses, using a regression sums of squares solution were performed on: (1) the set of twenty-four behavioral belief items, (2) the twenty-four outcome evaluation measures, (3) the five normative belief statements, and (4) the set of five motivation to comply items. (Recall that the twenty-four behavioral belief and five normative belief items were method-specific ratings; however, the outcome evaluations and motivation to comply measures were not method-specific, and thus were always the same responses, categorized differently according to experience and intention, across contraceptives. The implications of this are discussed in detail in a later section.) The analysis for each set of items produced multivariate statistics for the intention and experience main effects and the intention by experience interaction term; in addition, univariate statistics for every item within a set for each design effect were generated. Ultimately, the main interest in these analyses lay within the univariate statistical results.

At the univariate level of these analyses, many tests were performed for each contraceptive method; thus, there was considerable concern that numerous alpha errors would occur. In order to balance the issues of reducing the chance for alpha errors and maintaining good statistical power for detecting alternatives to the null hypotheses, a two-step procedure was implemented. The idea for utilizing this procedure to meet these goals was suggested in Cohen & Cohen (1975). They recommend an adaptation of Fisher's "protected t" or LSD test for multiple regression analyses on sets of independent variables. Cohen and Cohen (1975) suggest the following procedure

for set regression: (1) the contribution to Y variance of each set is tested for significance at a specified alpha level, (2) if the F-value for a given set is significant, the individual items which make up the set can be tested for significance at the criterion alpha level by means of a standard t-test, and (3) if the setwise F-value is not significant, no tests are performed on the members of that set.

An adaptation of Cohen and Cohen's strategy for protecting against large setwise alpha errors was employed in this study. The multivariate F-value for each main effect and interaction term for a given set of items was considered to be significant if it reached the .05 level. If the multivariate F-value, representing the overall significance of a set of items for a given effect, was significant, the univariate F-values for each item making up the set were examined for significance. If the multivariate F-value for a given effect was not significant, the univariate statistics were generally not interpreted.

Table 15 presents the significance levels of the multivariate F-values for the behavioral belief, outcome evaluation, normative belief, and motivation to comply item sets for each design effect across contraceptives. For the most part, the interactions between intention and experience were nonsignificant; only two of twenty-four interaction terms across all six birth control methods were significant at the .05 level or greater, which is about what would be expected by chance. Thus, the univariate analyses were not interpreted

Table 15

Significance of the Intention by Experience Multivariate Effects on Beliefs, Evaluations and Motivations to Comply for Each Contraceptive Method (College Sample Only)

Interaction and Main Effect Terms	CONTRACEPTIVE METHODS					
	PILL[a]	IUD[b]	DIAPHRAGM[b]	CONDOM[a]	WITHDRAWAL[a]	RHYTHM[a]
Behavioral Beliefs						
Intention by Experience	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Experience	.001	n.s.	.001	.002	n.s.	.04
Intention	.001	.001	.001	.001	.001	.001
Outcome Evaluations						
Intention by Experience	n.s.	n.s.	n.s.	.04	.04	n.s.
Experience	.001	n.s.	.04	.001	.02	.003
Intention	.001	.03	.001	.001	n.s.	.03
Normative Beliefs						
Intention by Experience	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Experience	.004	n.s.	n.s.	.02	.001	.001
Intention	.001	.001	.001	.001	.001	.001
Motivations to Comply						
Intention by Experience	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Experience	.005	n.s.	.02	.02	n.s.	.02
Intention	.001	n.s.	n.s.	n.s.	.03	n.s.

[a]2X3 MANOVA

[b]2X2 MANOVA

for these interaction terms. (Few of the univariate analyses for these interaction terms could have been considered significant anyway.)

In general, the multivariate analyses of the two main effects representing intention and experience tended to be highly significant for each item set across all contraceptives. There were some exceptions to this trend, however; thus, some of the relevant univariate analyses should not be considered statistically significant. For the sake of completeness, all univariate analyses on the main effects are presented in the following tables. These tables present the unweighted marginal means of the sets of items measuring relevant beliefs, evaluations, and motivations to comply for each level of the intention and experience main effects, with respect to each birth control method.

Because many statistical tests were performed, only those univariate results which reached the .01 alpha level were considered statistically significant and are discussed (although findings significant at the .05 level are highlighted in the accompanying tables). For the most part, mean differences between intenders and nonintenders were consistent with their intentions. That is, intenders of each method were (a) more likely to associate positive outcomes and (b) less likely to link negative consequences with using those methods than were nonintenders. Generally, the average responses of these groups reflected differences in response degree. For example, both groups may have believed Method X is effective, but intenders were

more extreme in their beliefs than nonintenders. In some cases, differences between the groups represented opposing views. For example, intenders may have believed Method X was easy to get, while nonintenders believed this to be unlikely.

Given the number of significant findings obtained, the results in this section are briefly summarized; the reader should refer to the accompanying tables for specific details of the findings, such as whether a result reflects a difference in response degree or opposing views held by intenders and nonintenders.

In terms of experience, most results indicated ever users gave more extreme responses than either virgins or never users. Again, these results are briefly summarized and the tables provided give more specific details of the findings.

Ratings of beliefs, evaluations and motivations to comply for the pill. Table 16 presents the univariate analyses on the behavioral beliefs and outcome evaluations for the pill. (Recall that the 7-point scales for behavioral beliefs and outcome evaluations were scored from -3 to +3. In the case of beliefs, the end-points of this scale represented extremely unlikely and extremely likely, respectively. For outcome evaluations, the scale ranged from extremely bad to extremely good.) Intenders generally believed there were greater "advantages" to using the pill than did nonintenders. An advantage is distinguishable from a disadvantage by the sign (positive versus negative) of the outcome evaluation and by whether the

Table 16

Mean Ratings of the Pill on Behavioral Beliefs and Outcome Evaluations by Intention and Experience (College Sample Only)

BEHAVIORAL BELIEFS

	Intention		Sexual Experience and Previous Use		
Outcomes	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	2.03	2.44*	1.87	2.63	2.21**
Major side effects	2.19	1.28**	1.39	1.90	1.92
Minor side effects	1.91	1.57	1.34	1.82	2.06*
Birth defects	1.52	0.71**	1.31	0.85	1.19
Easy to use	1.43	2.36**	1.43	2.56	1.70**
Lots of effort to use	0.08	-1.24**	-0.45	-0.94	-0.35
Helps with cycle	1.00	1.15	0.72	1.66	0.85
Is "natural"	-2.49	-1.04**	-1.44	-2.04	-1.83
Puts object in body	-2.08	-1.77	-1.40	-2.38	-1.99*
Puts drug in body	2.66	2.61	2.40	2.88	2.62
Morally acceptable	-0.81	1.53**	-0.33	1.19	0.23**
Have "on hand"	-0.99	-0.95	-0.71	-0.92	-1.27
Prevents VD	-2.25	-1.70*	-1.45	-2.27	-2.19**
Easy to hide	1.11	1.84**	1.24	1.60	1.58
Interrupts sex	-2.74	-2.45	-2.49	-2.82	-2.48
Reduces spontaneity	-2.12	-1.95	-1.68	-2.54	-1.88
Reduces male pleasure	-2.65	-2.66	-2.47	-2.76	-2.74
Reduces my pleasure	-1.81	-2.18	-1.93	-2.12	-1.95
Is messy	-2.30	-2.33	-2.05	-2.53	-2.36
Male is responsible	-2.50	-2.50	-2.28	-2.64	-2.58
Easy to get	0.49	1.43**	0.66	1.98	0.24**
Must see MD	2.56	2.57	2.26	2.88	2.56*
Costs a lot	1.50	0.90*	0.94	1.55	1.11
Get supplies	2.37	2.39	2.10	2.82	2.22*
N =	85	172	112	67	78

*$p < .05$
**$p < .01$

Table 16 (Continued)

OUTCOME EVALUATIONS

Outcomes	Intention		Sexual Experience and Previous Use		
	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	2.52	2.68	2.19	2.85	2.76**
Major side effects	-2.86	-2.55**	-2.69	-2.59	-2.84
Minor side effects	-2.08	-1.13**	-1.82	-1.35	-1.66
Birth defects	-2.90	-2.82	-2.85	-2.75	-2.97
Easy to use	2.31	2.51	2.14	2.65	2.44*
Lots of effort to use	-1.19	-1.27	-1.23	-1.05	1.41
Helps with cycle	0.89	1.70**	0.91	1.51	1.46*
Is "natural"	2.08	1.19**	1.85	1.54	1.51
Puts object in body	-1.06	-1.06	-1.31	-1.10	-0.76
Puts drug in body	-1.88	-0.46**	-1.39	-0.86	-1.26
Morally acceptable	2.03	2.13	2.10	2.08	2.07
Have "on hand"	-0.58	-0.82	-0.29	-1.26	-0.54*
Prevents VD	2.48	2.45	2.40	2.51	2.50
Easy to hide	1.74	1.63	1.16	2.06	1.83**
Interrupts sex	-1.48	-2.05**	-1.68	-1.88	-1.74
Reduces spontaneity	-1.41	-1.60	-1.28	-1.71	-1.53
Reduces male pleasure	-2.03	-2.21	-1.86	-2.38	-2.12*
Reduces my pleasure	-2.05	-1.93	-1.83	-2.47	-1.66**
Is messy	-1.75	-2.09*	-2.12	-1.78	-1.87
Male is responsible	0.61	-0.02*	0.59	0.07	0.23
Easy to get	1.91	1.91	1.52	2.29	1.92**
Must see MD	0.58	1.01	0.82	1.30	0.26**
Costs a lot	-1.62	-1.11*	-1.04	-1.58	-1.48*
Get supplies	0.05	0.52*	0.11	0.60	0.14
N =	85	172	112	67	78

*p <.05
**p <.01

object in question is perceived to be characterized by that outcome. Two types of beliefs represent contraceptive advantages: when the method is (a) characterized by a positive outcome, or (b) not linked with a negative consequence. Likewise, there are two types of beliefs which reflect disadvantages: when the method is (a) not characterized by a positive attribute, or (b) associated with a negative consequence.

Concerning advantages, pill intenders were more likely than nonintenders to believe this method is:

- easy to get,
- easy to hide,
- easy to use (or does not require a lot of motivation or effort to use), and
- morally acceptable to themselves.

Both groups believed the pill helps with hormonal or menstrual cycle problems, but the intenders thought this was a more positive outcome than did the nonintenders. Likewise, the two groups agreed that the pill does not interrupt sex, but intenders viewed such an outcome more negatively than nonintenders.

In terms of disadvantages, the nonintenders were more likely than intenders to believe the pill:

- causes major side effects, and
- causes birth defects.

Likewise, nonintenders more negatively evaluated some outcomes associated with the pill than did intenders, including:

- causes major side effects,
- causes minor side effects, and
- puts a drug or chemical in the body.

Lastly, nonintenders were more unlikely to believe the pill is "natural" and rated such an attribute more positively than did intenders.

The remaining data in Table 16 reveal differences among respondents categorized by their sexual experience and previous use of the pill on the behavioral beliefs and outcome evaluations. Recall that ever users had the strongest intentions to use the pill. Virgins also had positive, but less strong intentions. However, never users did not intend to use the pill, on the average.

Ever users were more likely to associate positive attributes to using the pill than either of the other two groups. For example, ever users were the most likely of the three groups to believe the pill is:

- effective,
- easy to use,
- morally acceptable to themselves, and
- easy to get.

In addition, ever users more positively evaluated several outcomes attributed to the pill than did the virgins or never users, including:

- effectiveness,
- ease of concealing a method,
- ease of obtaining a method, and

·being required to see a doctor to get a method.

Only one disadvantage yielded a significant difference between the three groups at the .01 level: ever users were the most unlikely to believe the pill prevents venereal diseases.

Table 17 presents the unweighted marginal means on the individual normative beliefs and motivation to comply items for the pill. As expected, intenders were more likely than nonintenders to believe that most doctors, their friends, parents, and boyfriends would approve of their using this method. On the other hand, nonintenders were more unlikely than intenders to believe people in their religion would approve of their using the pill. Lastly, intenders were more motivated than nonintenders to comply with what they believed most doctors thought they should do with respect to using birth control. (Recall the motivation to comply scales were scored from 1 to 7, representing extremely unlikely to extremely likely, respectively; the number 4 is the scale mid-point and corresponds to the notion of a "fifty-fifty" probability of compliance.)

Table 17 also indicates that ever users were more likely than the other groups to believe doctors would approve of their using the pill. Virgins were slightly motivated to comply with their perceptions of their parents' wishes (whom they believed neither approved nor disapproved of their using the pill), while ever and never users were slightly unmotivated or neutral about doing so (both groups believed their parents slightly approved of their using the pill). Ever users were the most unmotivated to comply with what they thought

Table 17

Mean Ratings of the Pill on Normative Beliefs and Motivations to Comply by Intention and Experience (College Sample Only)

NORMATIVE BELIEFS

	Intention		Sex Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	1.34	2.34**	1.28	2.30	1.94**
My friend	0.60	2.40**	1.19	1.97	1.34
Parents	-0.92	1.42**	-0.08	0.28	0.54
People in my religion	-1.68	-0.68**	-1.49	-1.12	-0.94
My boyfriend	0.34	2.45**	1.18	1.91	1.10
N =	85	172	112	67	78

MOTIVATION TO COMPLY

	Intention		Sex Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	4.96	6.01**	5.69	5.17	5.59
My friend	2.90	3.44	3.34	2.88	3.29
Parents	3.54	4.28*	4.62	3.13	3.99**
People in my religion	2.74	2.97	3.43	2.10	3.04**
My boyfriend	4.69	5.19	4.78	4.89	5.16
N =	85	172	112	67	78

*$p < .05$

**$p < .01$

people in their religion wanted them to do, followed by the never users and then the virgins; all three groups believed this referent group would disapprove of their using the pill.

Ratings of beliefs, evaluations, and motivations to comply for the condom. Table 18 presents the results concerning the behavioral belief and outcome evaluation ratings for the condom. A number of significant results reflected differing assessments of advantages to using condoms. For example, intenders were more likely than nonintenders to believe the condom is:

- effective,
- easy to use (or does not require a lot of motivation or effort to use),
- morally acceptable to themselves,
- easy to get, and
- prevents venereal disease.

Both groups agreed the condom is primarily the male's responsibility, but intenders viewed this characteristic positively, whereas nonintenders were negative toward such an outcome.

Two significant findings represented neither an advantage nor a disadvantage from the intenders' perspective. Intenders believed there was a fifty-fifty chance that condoms are messy, but nonintenders believed this to be likely, and rated messiness more negatively than intenders. The same pattern of results was found for ratings of reducing spontaneity and using condoms.

In terms of disadvantages, nonintenders were:

Table 18

Mean Ratings of the Condom on Behavioral Beliefs and Outcome Evaluations by Intention and Experience (College Sample Only)

BEHAVIORAL BELIEFS

	Intention		Sexual Experience and Previous Use		
Outcomes	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	-0.15	1.38**	0.41	0.82	0.62
Major side effects	-1.70	-2.02	-1.40	-2.23	-1.97**
Minor side effects	-1.68	-1.72	-1.46	-2.00	-1.64
Birth defects	-2.12	-2.40	-1.98	-2.52	-2.28*
Easy to use	0.56	1.67**	0.96	1.50	0.88
Lots of effort to use	0.29	-0.92**	-0.32	-0.36	-0.26
Helps with cycle	-2.30	-2.08	-1.88	-2.42	-2.28*
Is "natural"	-1.23	-0.40	-0.52	-0.85	-1.09
Puts object in body	-0.01	0.25	0.27	0.02	0.08
Puts drug in body	-2.34	-2.41	-2.34	-2.35	-2.44
Morally acceptable	0.28	1.54**	0.47	1.62	0.64**
Have "on hand"	1.82	2.04	1.70	2.14	1.94
Prevents VD	1.09	1.77**	0.75	2.17	1.38**
Easy to hide	0.96	1.08	0.85	1.32	0.88
Interrupts sex	1.01	0.90	0.52	1.18	1.16
Reduces spontaneity	0.41	-0.05	-0.33	0.52	0.35*
Reduces male pleasure	1.79	1.39*	1.11	1.86	1.81**
Reduces my pleasure	1.52	0.45**	0.61	1.10	1.26
Is messy	0.76	-0.04**	0.42	0.01	0.65
Male is responsible	2.55	2.51	2.48	2.70	2.40
Easy to get	1.29	2.04**	1.36	2.06	1.57*
Must see MD	-2.21	-2.41	-2.13	-2.48	-2.31
Costs a lot	-0.16	-0.32	-0.26	-0.59	0.13*
Get supplies	1.93	2.40*	1.99	2.16	2.35
N =	92	159	109	82	60

*$p < .05$

**$p < .01$

Table 18 (Continued)

OUTCOME EVALUATIONS

	Intention		Sexual Experience and Previous Use		
Outcomes	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	2.48	2.68	2.19	2.83	2.73**
Major side effects	-2.49	-2.68	-2.73	-2.49	-2.56
Minor side effects	-1.22	-1.46	-1.63	-1.02	-1.35**
Birth defects	-2.84	-2.81	-2.92	-2.85	-2.71
Easy to use	2.32	2.41	2.20	2.58	2.32*
Lots of effort to use	1.30	-1.19	-1.22	-1.47	-1.06
Helps with cycle	1.52	1.33	1.06	1.99	1.22**
Is "natural"	1.59	1.44	1.90	1.29	1.35*
Puts object in body	-1.48	-0.89**	-1.43	-1.33	-0.81*
Puts drug in body	-0.62	-1.13*	-1.10	-0.58	-0.94
Morally acceptable	2.20	1.98	2.18	2.11	1.99
Have "on hand"	-1.22	-0.42**	-0.41	-0.97	-1.08**
Prevents VD	2.34	2.46	2.34	2.43	2.44
Easy to hide	1.60	1.74	1.39	1.68	1.94
Interrupts sex	-2.19	-1.70**	-1.80	-1.99	-2.04
Reduces spontaneity	-1.82	-1.31**	-1.36	-1.69	-1.65
Reduces male pleasure	-2.22	-2.01	-1.96	-2.20	-2.18
Reduces my pleasure	-2.10	-1.85	-1.87	-2.01	-2.04
Is messy	-2.25	-1.78**	-2.19	-2.04	-1.82
Male is responsible	-0.19	0.53**	0.53	-0.01	-0.02
Easy to get	1.76	1.92	1.56	2.15	1.80**
Must see MD	1.13	0.48**	0.76	0.85	0.81
Costs a lot	-0.97	-1.33*	-0.90	-1.37	-1.19
Get supplies	0.42	0.32	0.15	0.36	0.60
N =	92	159	109	82	60

*$p < .05$

**$p < .01$

- more likely to believe condoms would reduce their own sexual pleasure, and were
- more unlikely to believe this method is natural

than intenders. In general, condoms were viewed by both groups to have several disadvantages, but nonintenders rated these characteristics more negatively than did intenders, including:

- putting an object or barrier device in the body,
- having a method "on hand" at the time of intercourse, and
- interrupting on-going sexual activity.

Likewise, both groups agreed that one is not required to see a doctor to get condoms, but nonintenders viewed this outcome more positively than intenders.

Marginal mean responses for beliefs and evaluations regarding condoms, across the virgin, ever user, and never user groups, are also presented in Table 18. Recall that, on the average, virgins and ever users indicated they were likely to intend to use condoms, whereas never users reported they were unlikely to use this method of birth control.

In terms of advantages, ever users were the most likely to believe condoms (a) are morally acceptable to themselves, and (b) prevent venereal diseases, and were the most unlikely to believe condoms cause major side effects. All groups agreed condoms are effective, easy to get, and do not cause minor side effects; however, ever users viewed the first two outcomes the most positively, while the

virgins evaluated the last outcome the most negatively.

Several significant results also revealed differing assessments of disadvantages to using condoms. Ever users were the most likely to believe condoms would reduce their partner's sexual pleasure. All three groups believed condoms do not help with hormonal or menstrual cycle problems, but the ever users viewed such an outcome the most positively. Likewise, condoms were recognized as a method which must be "on hand" at the time of intercourse, but never users rated this attribute the most negatively, followed closely by the ever users and then the virgins.

Table 19 presents the unweighted marginal mean ratings for the condom, across the intention and experience factors, on the normative belief and motivation to comply measures. In all but one case, intenders and nonintenders held opposing views of whether or not they believed salient referent groups would approve of the use of condoms. Intenders believed most doctors, their friends, parents, and their boyfriends approved of using condoms, whereas nonintenders believed this to be unlikely. Nonintenders were more unlikely than intenders to believe that people in their religion would approve of their using condoms. In terms of motivations to comply, the multivariate F-value for the intention main effect was not significant; similarly, none of the univariate analyses reached the .01 level of significance.

Few significant differences were found across the experience

Table 19

Mean Ratings of the Condom on Normative Beliefs and Motivations to Comply by Intention and Experience (College Sample Only)

NORMATIVE BELIEFS

	Intention		Sexual Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	-0.54	1.27**	0.33	0.66	0.10
My friends	-0.80	1.64**	0.46	0.51	0.29
My parents	-1.12	0.81**	-0.35	0.23	-0.34
People in my religion	-1.24	-0.31**	-0.94	-0.72	-0.67
My boyfriend	-1.51	0.73**	0.07	-0.18	-1.06**
N =	92	159	107	82	60

MOTIVATION TO COMPLY

	Intention		Sexual Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	5.53	5.78	5.85	5.59	5.53
My friends	3.22	3.32	3.38	3.44	2.99
My parents	3.95	4.16	4.57	3.73	3.88**
People in my religion	2.94	3.02	3.42	2.78	2.74*
My boyfriend	4.75	5.25*	4.82	5.02	5.16
N =	92	159	109	82	60

*$p < .05$

**$p < .01$

factor. Never users were the most unlikely to believe their boyfriends would approve of using condoms. Virgins were somewhat motivated to comply with what they thought their parents wanted them to do, whereas ever and never users were neutral or slightly unmotivated to do so (virgins and never users thought their parents would disapprove, while ever users believed they would approve of using condoms).

Ratings of beliefs, evaluations, and motivations to comply for withdrawal. Marginal mean ratings on the behavioral beliefs and outcome evaluations, across the intention and experience factors, for the withdrawal method are presented in Table 20. With respect to advantages, intenders were more likely than nonintenders to believe withdrawal is:

- easy to use (or does not require a lot of motivation or effort to use),
- natural,
- morally acceptable to themselves, and
- easy to get.

Some significant results also reflected disadvantages to using withdrawal. Interestingly, both groups believed withdrawal was not likely to be effective, nor to prevent venereal diseases; however, nonintenders held these beliefs to a greater extent than did the intenders.

Recall that the multivariate F-value on the outcome evaluation item set for the intention main effect was not significant (see

Table 20

Mean Ratings of Withdrawal on Behavioral Beliefs and Outcome Evaluations by Intention and Experience (College Sample Only)

BEHAVIORAL BELIEFS

	Intention		Sexual Experience and Previous Use		
Outcomes	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	-1.80	-0.22**	-0.80	-1.16	-1.08
Major side effects	-2.06	-2.44	-1.93	-2.56	-2.27*
Minor side effects	-1.85	-1.97	-1.46	-2.19	-2.08*
Birth defects	-2.26	-2.52	-2.13	-2.67	-2.37*
Easy to use	-1.00	0.54**	-0.37	0.13	-0.44
Lots of effort to use	1.19	-0.48**	0.90	0.20	-0.05*
Helps with cycle	-2.21	-1.76	-1.46	-2.26	-2.23**
Is "natural"	0.75	1.60**	0.82	1.63	1.06*
Puts object in body	-2.38	-2.40	-1.95	-2.63	-2.59**
Puts drug in body	-2.57	-2.31	-2.26	-2.64	-2.43
Morally acceptable	0.17	1.49**	0.47	1.38	0.65*
Have "on hand"	-1.21	-1.30	-1.14	-1.58	-1.04
Prevents VD	-2.18	-1.52**	-1.43	-2.23	-1.89**
Easy to hide	2.03	2.29	1.79	2.53	2.16*
Interrupts sex	2.14	1.65	1.58	2.40	1.69*
Reduces spontaneity	-0.87	-0.80	-0.45	-1.40	-0.64*
Reduces male pleasure	1.67	1.74	1.61	1.83	1.69
Reduces my pleasure	1.76	1.05*	1.36	1.51	1.34
Is messy	0.59	0.66	0.50	0.85	0.52
Male is responsible	1.92	2.46	1.66	2.45	2.46**
Easy to get	0.70	1.76**	0.97	1.87	0.85**
Must see MD	-2.33	-2.23	-2.02	-2.54	-2.28
Costs a lot	-2.31	-2.40	-1.90	-2.73	-2.43**
Get supplies	-2.43	-2.38	-1.89	-2.77	-2.56**
N =	173	81	109	82	63

*$p < .05$

**$p < .01$

Table 20 (Continued)

OUTCOME EVALUATIONS

	Intention		Sexual Experience and Previous Use		
Outcomes	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	2.71	2.47	2.18	2.79	2.80**
Major side effects	-2.60	-2.60	-2.76	-2.50	-2.54
Minor side effects	-1.27	-1.57	-1.67	-1.31	-1.28
Birth defects	-2.81	-2.81	-2.87	-2.83	-2.75
Easy to use	2.54	1.97**	2.31	2.56	1.90**
Lots of effort to use	-1.21	-1.42	-1.04	-1.41	-1.49
Helps with cycle	1.49	1.41	1.07	1.61	1.66
Is "natural"	1.36	1.87*	1.85	1.35	1.65
Puts object in body	-1.05	-1.46	-1.27	-1.10	-1.40
Puts drug in body	-0.68	-1.43**	-1.25	-0.69	-1.23
Morally acceptable	2.11	1.98	2.16	2.10	1.89
Have "on hand"	-0.68	-0.83	-0.25	-0.89	-1.13**
Prevents VD	2.50	2.36	2.31	2.38	2.60
Easy to hide	1.60	1.71	1.25	1.82	1.89*
Interrupts sex	-2.00	-1.86	-1.59	-2.04	-2.17*
Reduces spontaneity	-1.54	-1.47	-1.30	-1.64	-1.56
Reduces male pleasure	-2.13	-2.10	-1.92	-2.24	-2.18
Reduces my pleasure	-2.03	-1.76	-1.83	-2.07	-1.79
Is messy	-2.02	-1.93	-1.93	-1.86	-2.13
Male is responsible	0.08	0.34	0.54	0.13	-0.03
Easy to get	1.86	1.76	1.70	2.08	1.65
Must see MD	0.99	0.37*	0.60	0.84	0.61
Costs a lot	-1.13	-1.54	-1.04	-1.36	-1.59
Get supplies	0.61	-0.08**	-0.06	0.56	0.30*
N =	173	81	109	82	63

*$p < .05$

**$p < .01$

Table 15). Thus, the univariate results should be considered suggestive rather than statistically significant. Nonintenders were more positive about using a method which is easy to use and requires that they obtain supplies from a drugstore or pharmacy than were intenders. On the other hand, intenders were more negative than nonintenders about using a method which puts a drug or chemical in their bodies.

The remaining data presented in Table 20 presents the unweighted marginal mean ratings on the beliefs and evaluations of withdrawal for the different experience groups. Given the number of significant univariate results at the .01 alpha level, it is surprising that the overall multivariate F-value for the belief item set was not significant (see Table 15). These results are therefore interpreted with caution.

Recall that ever users were only slightly likely to intend to use withdrawal, while both virgins and never users had strong intentions not to use this method. Some judgments of advantages distinguished the three experience groups. For example, ever users were the most likely to believe withdrawal is:

- easy to get, and
- easy to use,

and were the most unlikely to believe this method:

- puts an object or barrier device in the body, or
- would cost a lot of money.

Ever users rated ease of use the most positively. Ever and never users were more likely than the virgins to believe withdrawal is

primarily the male's responsibility. Lastly, all groups agreed it is unlikely that withdrawal must be "on hand" at the time of intercourse, but never users rated such an outcome the most negatively.

In terms of disadvantages, ever users were the most unlikely to believe withdrawal would:

- help with hormonal or menstrual cycle problems,
- prevent venereal diseases, and
- require them to obtain supplies at a drugstore or pharmacy.

Lastly, although all three groups believed it was unlikely that withdrawal is effective, the ever and never users were more positive about using an effective means of birth control than were the virgins.

Table 21 presents the unweighted marginal mean ratings of the withdrawal method, across the intention and experience factors, on the normative belief and motivation to comply items. Nonintenders were more unlikely than intenders to believe that most doctors, their friends, and parents would approve their using withdrawal. On the other hand, intenders believed their boyfriends would approve of their using withdrawal, while nonintenders held the opposing view. Nonintenders were more unlikely than intenders to be motivated to comply with what they believed people in their religion wanted them to do (the former group thought it unlikely they would approve, while the latter thought it was a fifty-fifty chance or slightly likely they would approve).

Table 21

Mean Ratings of Withdrawal on Normative Beliefs and Motivations to Comply by Intention and Experience (College Sample Only)

NORMATIVE BELIEFS

	Intention		Sexual Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	-2.21	-1.26**	-1.22	-1.87	-2.11**
My friends	-2.09	0.06**	-0.70	-1.09	-1.26
My parents	-2.13	-0.71**	-1.15	-1.31	-1.80
People in my religion	-0.31	0.18	0.01	0.19	-0.40
My boyfriend	-2.06	0.67**	-1.01	-0.18	-0.90**
N =	173	81	109	82	63

MOTIVATION TO COMPLY

	Intention		Sexual Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	5.91	5.50	5.80	5.68	5.64
My friends	3.22	3.37	3.51	3.20	3.17
My parents	3.87	4.49*	4.60	3.64	4.30**
People in my religion	2.79	3.50**	3.44	2.70	3.30*
My boyfriend	4.94	5.41	5.11	5.06	5.36
N =	173	81	109	82	63

*$p < .05$

**$p < .01$

The remaining results presented in Table 21 concern group differences in beliefs and motivations to comply across the experience factor. For the experience main effect, the multivariate F-value for the normative belief item set was significant, but was not significant for the motivation to comply item set (see Table 15). Thus, the univariate results for the motivation items should be considered suggestive rather than statistically significant.

Never users were the most unlikely to believe doctors would approve of their using withdrawal. Virgins and never users were more unlikely than ever users to believe their boyfriends would approve of withdrawal. All three groups believed their parents would not approve of using withdrawal; the virgins and the never users were somewhat motivated to comply with what they believed their parents wanted them to do, but the ever users were not motivated to do so.

Ratings of beliefs, evaluations, and motivations to comply for the rhythm method. Table 22 presents the unweighted marginal means for the intention and experience factors on the behavioral beliefs and outcome evaluations of the rhythm method. Concerning advantages, intenders were more likely than nonintenders to believe rhythm is:

- effective,
- easy to use (or does not require a lot of effort or motivation to use),
- morally acceptable to themselves, and
- easy to get.

Table 22

Mean Ratings of Rhythm on Behavioral Beliefs and Outcome Evaluations by Intention and Experience (College Sample Only)

BEHAVIORAL BELIEFS

	Intention		Sexual Experience and Previous Use		
Outcomes	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	-1.46	0.29**	-0.56	-0.48	-0.70
Major side effects	-2.34	-2.31	-2.15	-2.49	-2.34
Minor side effects	-2.17	-1.85	-1.75	-2.32	-1.98
Birth defects	-2.59	-2.27	-2.19	-2.61	-2.48
Easy to use	-0.82	0.68**	0.03	0.60	-0.84**
Lots of effort to use	0.77	-0.26**	0.38	-0.20	0.59
Helps with cycle	-2.11	-1.51**	-1.43	-2.11	-1.90*
Is "natural"	2.08	2.32	2.07	2.61	1.92
Puts object in body	-2.62	-2.43	-2.38	-2.70	-2.49
Puts drug in body	-2.70	-2.59	-2.48	-2.70	-2.74
Morally acceptable	1.48	2.44**	1.99	2.26	1.62
Have "on hand"	-1.32	-0.94	-1.12	-0.99	-1.29
Prevents VD	-2.35	-1.94	-1.64	-2.57	-2.23**
Easy to hide	2.29	2.40	2.11	2.67	2.25
Interrupts sex	-1.68	-1.89	-1.20	-2.16	-1.99**
Reduces spontaneity	0.89	1.04	1.40	0.39	1.10*
Reduces male pleasure	-0.92	-1.39	-1.00	-1.35	-1.11
Reduces my pleasure	-0.36	-1.31**	-0.66	-1.09	-0.76
Is messy	-1.91	-2.12	-1.54	-2.36	-2.15**
Male is responsible	-2.07	-1.55*	-1.61	-2.00	-1.82
Easy to get	1.11	1.87**	1.55	1.91	1.00
Must see MD	-1.57	-1.34	-1.00	-1.86	-1.52*
Costs a lot	-2.55	-2.28	-2.29	-2.65	-2.31
Get supplies	-2.54	-2.31	-2.28	-2.71	-2.29
N =	151	98	110	51	88

*$p < .05$

**$p < .01$

Table 22 (Continued)

OUTCOME EVALUATIONS

	Intention		Sexual Experience and Previous Use		
Outcomes	Not Intend	Intend	Virgins	Ever Users	Never Users
Effectiveness	2.74	2.51	2.27	2.80	2.81**
Major side effects	-2.54	-2.72	-2.69	-2.54	-2.66
Minor side effects	-1.18	-1.51	-1.62	-1.06	-1.36*
Birth defects	-2.79	-2.90	-2.87	-2.88	-2.79
Easy to use	2.56	2.17**	2.26	2.42	2.43
Lots of effort to use	-1.18	-1.17	-1.09	-1.21	-1.22
Helps with cycle	1.49	1.25	0.99	1.48	1.63*
Is "natural"	1.22	1.85**	1.84	1.47	1.30
Puts object in body	-1.04	-1.30	-1.34	-1.19	-0.98
Puts drug in body	-0.66	-1.37**	-1.16	-1.00	-0.89
Morally acceptable	2.07	2.20	2.17	2.29	1.94
Have "on hand"	-0.71	-0.70	-0.23	-0.85	-1.03**
Prevents VD	2.42	2.54	2.41	2.41	2.62
Easy to hide	1.65	1.77	1.31	1.68	2.14**
Interrupts sex	-2.02	-1.79	-1.67	-2.08	-1.96
Reduces spontaneity	-1.62	-1.43	-1.28	-1.66	-1.63
Reduces male pleasure	-2.20	-1.90*	-1.92	-2.12	-2.12
Reduces my pleasure	-2.06	-1.57*	-1.75	-1.89	-1.81
Is messy	-1.98	-1.98	-2.08	-1.93	-1.95
Male is responsible	0.24	-0.04	0.50	0.16	-0.36**
Easy to get	1.88	1.67	1.61	1.90	1.81
Must see MD	0.90	0.58	0.78	0.74	0.69
Costs a lot	-1.22	-1.20	-0.98	-1.25	-1.40
Get supplies	0.46	0.17	0.12	0.27	0.54
N =	151	98	110	51	88

*$p < .05$

**$p < .01$

Also, intenders were more unlikely to believe rhythm would reduce their own sexual pleasure than were nonintenders. Both groups agreed that rhythm is "natural" and does not put a drug or chemical in the body; however, intenders evaluated the former outcome more positively and the latter outcome more negatively than did nonintenders. On the other hand, nonintenders more favorably evaluated ease of use than did intenders. Only one result revealed a disadvantage to using rhythm: nonintenders were more unlikely to believe this method would help with hormonal or menstrual cycle problems than intenders.

Ratings of beliefs and evaluations also differed across the experience groups, as shown in Table 22. As with intentions to use withdrawal, ever users were only slightly likely to use rhythm; in contrast, virgins and never users did not intend to use this method, on the average.

Ever users were the most likely to believe rhythm is easy to use, and were the most unlikely to think this method interrupts sex or is messy. All groups agreed rhythm does not have to be "on hand" at the time of intercourse and that it is easy to hide; however, never users rated the former outcome the most negatively and the latter attribute the most positively.

In terms of disadvantages, ever users were the most unlikely to believe rhythm prevents venereal diseases. All three groups agreed that rhythm is not effective and is not primarily the male's

responsibility; however, the nonvirgins rated using an effective means of birth control more positively than did the virgins, while the virgins were the most positive about using a male-oriented method.

Table 23 presents the unweighted marginal means, across the intention and experience factors, for ratings of the rhythm method in terms of normative beliefs and motivations to comply. The multivariate F-value for the intention main effect on the normative belief item set was significant, but was not significant for the motivation to comply items. (In fact, none of the univariate F-values for the latter set reached significance.) In general, intenders were either neutral or were more likely than nonintenders to believe that each referent person or group would approve of their using rhythm.

Significant differences were also obtained across the experience factor. Never users were the most unlikely to believe that doctors and their friends would approve of rhythm. Both virgins and never users thought it unlikely their boyfriends would approve of using rhythm; however, ever users believed this to be slightly likely. Never users were the most unlikely to comply with what they believed people in their religion wanted them to do; each group believed this referent group would approve their use of the rhythm method.

Ratings of beliefs, evaluations, and motivations to comply for the IUD. Mean behavioral beliefs and outcome evaluations regarding the IUD, across the intention and experience groups are presented in

Table 23

Mean Ratings of Rhythm on Normative Beliefs and Motivations to Comply by Intention and Experience (College Sample Only)

NORMATIVE BELIEFS

	Intention		Sexual Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	-1.68	0.08**	-0.29	-0.89	-1.23**
My friends	-1.87	0.04**	-0.61	-0.70	-1.43**
My parents	-1.64	0.30**	-0.31	-0.89	-0.81
People in my religion	1.11	1.96**	1.43	2.04	1.14
My boyfriend	-1.54	0.95**	-0.26	0.26	-0.88**
N =	151	98	110	51	88

MOTIVATION TO COMPLY

	Intention		Sexual Experience and Previous Use		
Referent Groups	Not Intend	Intend	Virgins	Ever Users	Never Users
Most doctors	5.84	5.81	5.83	5.81	5.83
My friends	3.32	2.99	3.37	3.15	2.95
My parents	4.07	4.07	4.54	3.97	3.69*
People in my religion	2.77	3.06	3.27	3.12	2.34**
My boyfriend	5.01	5.01	4.84	5.36	4.83
N =	151	98	110	51	88

*$p < .05$

**$p < .01$

Table 24. Note that the results for the intention main effect should be viewed with caution due to the small sample size for the IUD intender group (n = 38). In terms of advantages, IUD intenders were more likely than nonintenders to believe this method is:

- effective,
- easy to use (or does not require a lot of motivation or effort to use),
- morally acceptable to themselves,
- easy to hide, and
- easy to get.

Also, intenders were unlikely to believe IUDs cause birth defects, while nonintenders held the opposite view.

On the negative side, nonintenders were more likely to believe IUDs cause major side effects for users, and were more unlikely to view the IUD as "natural" or as primarily the male's responsibility than did intenders. Lastly, although both groups agreed that the IUD puts an object or barrier device in the body, nonintenders were more negative than intenders toward this outcome.

The multivariate F-value for the experience main effect on the behavioral belief and outcome evaluation item sets were nonsignificant. Thus, the univariate analyses should be considered suggestive rather than significant. Recall that few virgins or nonvirgins intended to use the IUD. In terms of disadvantages, nonvirgins were more unlikely to believe the IUD prevents venereal diseases, and more negatively evaluated using a method which must be "on hand" at the time of

Table 24

Mean Ratings of the IUD on Behavioral Beliefs and Outcome Evaluations by Intention and Experience (College Sample Only)

BEHAVIORAL BELIEFS

	Intention		Sexual Experience	
Outcomes	Not Intend	Intend	Virgins	Nonvirgins
Effectiveness	0.99	1.93**	1.25	1.67
Major side effects	1.26	0.21**	0.70	0.78
Minor side effects	1.24	0.59*	0.71	1.13
Birth defects	0.51	-0.39**	-0.18	0.30
Easy to use	-0.28	1.22**	0.22	0.72
Lots of effort to use	1.08	-0.39**	0.43	0.26
Helps with cycle	-1.58	-1.14	-1.15	-1.57
Is "natural"	-2.34	-1.22**	-1.85	-1.70
Puts object in body	2.37	2.56	2.50	2.43
Puts drug in body	-1.74	-1.57	-1.47	-1.84
Morally acceptable	-1.16	0.59**	-0.30	-0.27
Have "on hand"	0.02	0.61	0.52	0.12
Prevents VD	-1.51	-1.04	-0.75	-1.79**
Easy to hide	1.34	2.19**	1.46	2.08
Interrupts sex	-1.58	-1.65	-1.45	-1.78
Reduces spontaneity	-1.46	-1.68	-1.46	-1.67
Reduces male pleasure	-1.00	-1.30	-0.90	-1.40
Reduces my pleasure	-0.08	-0.95*	-0.18	-0.85
Is messy	-0.59	-1.29*	-0.64	-1.25
Male is responsible	-2.46	-1.83**	-1.95	-2.34
Easy to get	-0.89	0.79**	-0.10	-0.00
Must see MD	2.30	2.31	2.20	2.41
Costs a lot	1.50	1.03*	1.30	1.24
Get supplies	1.07	1.19	1.58	0.68*
N =	217	38	109	146

*p <.05

**p <.01

Table 24 (Continued)

OUTCOME EVALUATIONS

	Intention		Sexual Experience	
Outcomes	Not Intend	Intend	Virgins	Nonvirgins
Effectiveness	2.52	2.74	2.48	2.78*
Major side effects	-2.64	-2.66	-2.71	-2.59
Minor side effects	-1.49	-1.31	-1.70	-1.10**
Birth defects	-2.84	-2.87	-2.91	-2.80
Easy to use	2.38	2.39	2.45	2.31
Lots of effort to use	-1.26	-1.04	-1.02	-1.28
Helps with cycle	1.31	1.49	1.32	1.48
Is "natural"	1.62	1.46	1.75	1.33
Puts object in body	-1.31	-0.34**	-0.86	-0.78
Puts drug in body	-1.06	-0.65	-0.91	-0.81
Morally acceptable	2.10	2.19	2.20	2.09
Have "on hand"	-0.55	-0.71	-0.22	-1.04**
Prevents VD	2.50	2.26	2.32	2.44
Easy to hide	1.48	2.00*	1.57	1.91
Interrupts sex	-1.75	-2.18*	-1.83	-2.09
Reduces spontaneity	-1.42	-1.67	-1.32	-1.76*
Reduces male pleasure	-2.07	-2.13	-2.05	-2.16
Reduces my pleasure	-1.83	-2.05	-1.85	-2.04
Is messy	-1.96	-2.25	-2.22	-1.99
Male is responsible	0.30	0.11	0.37	0.03
Easy to get	1.79	1.89	1.73	1.95
Must see MD	0.70	1.10	0.88	0.92
Costs a lot	-1.18	-1.14	-1.15	-1.17
Get supplies	0.31	0.43	0.34	0.40
N =	217	38	109	146

*$p < .05$

**$p < .01$

intercourse than did virgins. Lastly, virgins held more negative views about using a method which causes minor side effects than did nonvirgins.

Unweighted marginal means for the IUD on the normative belief and motivation to comply ratings can be found in Table 25. The multivariate F-value on the normative belief item set for the intention main effect was significant, but was nonsignificant for the motivation to comply items (see Table 15). As with judgments of the rhythm method, none of the univariate statistics for the items in the latter set were significant.

Intenders were more likely than nonintenders to believe that most doctors, their friends, parents, and boyfriends would approve of their using the IUD. The nonintenders were more unlikely to believe people in their religion would approve of using an IUD than were intenders.

Neither of the multivariate F-values, for the experience main effect, on the normative belief nor the motivation to comply item sets were significant. Likewise, none of the univariate statistics reached the .01 alpha level; thus, no discussion of these findings is presented.

Ratings of beliefs, evaluations, and motivations to comply for the diaphragm. Table 26 presents the unweighted marginal mean responses for the behavioral beliefs and outcome evaluations of the diaphragm. On the positive side, intenders were more likely than

Table 25

Mean Ratings of the IUD on Normative Beliefs and Motivations to Comply by Intention and Experience (College Sample Only)

NORMATIVE BELIEFS

	Intention		Sexual Experience	
Referent Groups	Not Intend	Intend	Virgins	Nonvirgins
Most doctors	-0.20	1.78**	0.59	0.99
My friends	-1.69	0.87**	-0.31	-0.50
My parents	-1.84	0.53**	-0.67	-0.64
People in my religion	-1.98	-0.43**	-1.33	-1.08
My boyfriend	-1.46	1.02**	-0.19	-0.25
N =	217	38	109	146

MOTIVATION TO COMPLY

	Intention		Sexual Experience	
Referent Groups	Not Intend	Intend	Virgins	Nonvirgins
Most doctors	5.71	6.07	6.07	5.70
My friends	3.34	3.40	3.46	3.28
My parents	4.26	3.86	4.40	3.72*
People in my religion	3.13	2.61	3.08	2.66
My boyfriend	4.98	4.93	4.97	4.94
N =	217	38	109	146

*$p < .05$

**$p < .01$

Table 26

Mean Ratings of the Diaphragm on Behavioral Beliefs and Outcome Evaluations by Intention and Experience (College Sample Only)

BEHAVIORAL BELIEFS

	Intention		Sexual Experience	
Outcomes	Not Intend	Intend	Virgins	Nonvirgins
Effectiveness	0.93	1.75**	1.35	1.34
Major side effects	0.08	-1.04**	-0.11	-0.85**
Minor side effects	0.39	-0.52**	0.12	-0.25
Birth defects	-0.38	-1.04**	-0.57	-0.86
Easy to use	-0.44	1.02**	0.33	0.26
Lots of effort to use	1.11	0.78	0.78	1.11
Helps with cycle	-1.76	-1.39	-1.22	-1.93**
Is "natural"	-2.00	-0.59**	-1.39	-1.20
Puts object in body	2.43	2.66	2.43	2.65
Puts drug in body	-1.35	-0.46**	-0.85	-0.97
Morally acceptable	-0.68	1.43**	0.02	0.73**
Have "on hand"	1.39	2.20**	1.46	2.13**
Prevents VD	-1.22	-0.73	-0.73	-1.22
Easy to hide	0.64	1.16*	0.82	0.97
Interrupts sex	-0.68	-0.07*	-0.64	-0.10
Reduces spontaneity	-0.42	0.39**	-0.36	0.33**
Reduces male pleasure	-0.49	-0.37	-0.36	-0.50
Reduces my pleasure	0.26	0.27	0.32	0.21
Is messy	0.53	0.67	0.24	0.96**
Male is responsible	-2.38	-2.28	-2.19	-2.47
Easy to get	-0.59	0.60**	-0.09	0.10
Must see MD	2.08	2.12	2.09	2.12
Costs a lot	1.06	0.93	1.03	0.96
Get supplies	1.58	1.87	1.81	1.64
N =	171	82	112	141

*p <.05

**p <.01

Table 26 (Continued)

OUTCOME EVALUATIONS

	Intention		Sexual Experience	
Outcomes	Not Intend	Intend	Virgins	Nonvirgins
Effectiveness	2.49	2.70	2.41	2.77**
Major side effects	-2.63	-2.68	-2.70	-2.60
Minor side effects	-1.39	-1.62	-1.67	-1.33*
Birth defects	-2.82	-2.85	-2.86	-2.81
Easy to use	2.33	2.59	2.43	2.49
Lots of effort to use	-1.42	-0.76**	-1.06	-1.12
Helps with cycle	1.40	1.45	1.32	1.53
Is "natural"	1.66	1.53	1.77	1.42
Puts object in body	-1.69	-0.10**	-0.98	-0.81
Puts drug in body	-1.08	-0.91	-1.06	-0.93
Morally acceptable	2.12	2.17	2.16	2.12
Have "on hand"	-0.83	-0.01**	-0.18	-0.67*
Prevents VD	2.48	2.48	2.45	2.51
Easy to hide	1.54	1.67	1.35	1.86**
Interrupts sex	-1.98	-1.58*	-1.68	-1.87
Reduces spontaneity	-1.51	-1.31	-1.23	-1.59*
Reduces male pleasure	-2.12	-1.93	-1.90	-2.14
Reduces my pleasure	-1.91	-1.72	-1.73	-1.90
Is messy	-2.06	-1.89	-2.04	-1.90
Male is responsible	0.28	0.33	0.44	0.17
Easy to get	1.83	1.88	1.71	2.00
Must see MD	0.62	1.01	0.91	0.72
Costs a lot	-1.21	-1.19	-1.09	-1.32
Get supplies	0.26	0.38	0.25	0.39
N =	171	82	112	141

*p <.05

**p <.01

nonintenders to believe the diaphragm is:

- effective,
- easy to use,
- morally acceptable to themselves, and
- easy to get.

Likewise, intenders were more unlikely than nonintenders to believe diaphragms cause:

- major side effects,
- minor side effects, and
- birth defects.

One rating revealed neither an advantage nor a disadvantage for intenders: the intenders were more likely to believe the diaphragm must be "on hand" at the time of intercourse, but were neutral on the outcome evaluation of this attribute, while nonintenders were negative.

Both groups recognized several disadvantages to using the diaphragm, sometimes the intenders more so than the nonintenders. The nonintenders were more unlikely than intenders to believe the diaphragm is:

- natural,
- puts a drug or chemical in the body, and
- reduces spontaneity.

Both groups believed the diaphragm may (a) require a lot of effort or motivation to use (which is inconsistent with results reported above for intenders), and (b) puts an object or barrier device in the body; however, nonintenders rated each outcome more negatively than did

intenders.

Significant differences in beliefs and evaluations also emerged for the experience factor. Recall that both virgins and nonvirgins were unlikely to intend to use the diaphragm. In terms of advantages, nonvirgins were (a) more unlikely to believe this method causes major side effects, and (b) more likely to think it is morally acceptable to themselves, than virgins. Both groups agreed the diaphragm is effective and easy to hide; but, the nonvirgins rated both attributes more positively than did the virgins.

Turning to disadvantages, nonvirgins were more likely than virgins to believe diaphragms:

- must be "on hand" at the time of intercourse,
- reduce spontaneity, and
- are messy.

Nonvirgins were also more unlikely to believe this method helps with hormonal or menstrual cycle problems than virgins.

Table 27 presents the unweighted marginal means for the normative belief and motivation to comply ratings of the diaphragm, across the intention and experience factors. As with judgments of the IUD, the multivariate F-value for the intention main effect was significant on the normative belief item set, but was not significant for the motivation to comply items. Again, none of the univariate statistics on the latter set were significant.

Intenders were more likely than nonintenders to believe most

Table 27

Mean Ratings of the Diaphragm on Normative Beliefs and Motivations to Comply By Intention and Experience (College Sample Only)

NORMATIVE BELIEFS

	Intention		Sexual Experience	
Referent Groups	Not Intend	Intend	Virgins	Nonvirgins
Most doctors	0.18	1.79**	0.89	1.08
My friends	-1.15	1.23**	0.01	0.06
My parents	-1.25	0.99**	-0.26	0.00
People in my religion	-1.64	-0.48**	-1.10	-1.01
My boyfriend	-1.31	1.03**	-0.05	-0.23
N =	171	82	112	141

MOTIVATION TO COMPLY

	Intention		Sexual Experience	
Referent Groups	Not Intend	Intend	Virgins	Nonvirgins
Most doctors	5.73	5.96	5.98	5.71
My friends	3.31	3.27	3.36	3.21
My parents	4.33	3.96	4.50	3.79**
People in my religion	3.19	2.73	3.16	2.76
My boyfriend	4.92	5.07	4.88	5.11
N =	171	82	112	141

*$p < .05$

**$p < .01$

doctors, their friends, parents, and boyfriends would approve of using the diaphragm. Nonintenders were more unlikely to believe people in their religion would approve of diaphragms than intenders.

For the experience main effect, the multivariate F-value on the normative belief set was nonsignificant; however, it was significant for the motivation to comply item set; none of the univariate statistics for the normative beliefs were significant. Virgins were slightly motivated to comply with what they believed their parents felt they should do, while nonvirgins were slightly unmotivated to do so (the former believed it was unlikely their parents would approve, while the latter were neutral). The lack of significant differences between virgins and nonvirgins was consistent with the fact that these groups did not significantly differ in their intentions to use diaphragms.

Summary of Results on Beliefs, Evaluations, and Motivations to Comply for Each Contraceptive Method

It was found that intenders of each contraceptive under investigation were more likely than nonintenders to believe they could attain several positive benefits and, for the most part, avoid some negative consequences by using specific methods. Of course, each method was also believed to lack certain advantages and to possess some disadvantages. However, on the whole, when respondents appeared to believe that benefits outweighed costs, they reported a positive intention to use those specific methods. This implicit "cost-benefit" analysis is precisely what the Fishbein-Ajzen model represents, both

mathematically and conceptually.

With respect to the pill, condom, withdrawal, and rhythm methods, differences between intenders and nonintenders most frequently reflected variations in response degree, rather than opposing beliefs or evaluations. Roughly half of the discrepancies between college women who intended versus did not intend to use the diaphragm or IUD were the result of differences in response degree; the remaining results were due to opposing views held by intenders and nonintenders.

Several positive features or advantages, and negative characteristics or disadvantages, significantly differentiated intenders from nonintenders, across more than one contraceptive method. These differences in terms of behavioral beliefs are highlighted in Table 28. For example, women who intended to use the IUD, diaphragm, condom, or rhythm methods were more likely to believe these methods are effective than did nonintenders. (The same result was obtained for the pill, but was significant only at the .05 level.) Beliefs about effectiveness also differentiated withdrawal intenders from nonintenders; however, both groups believed withdrawal to be ineffective, intenders less so than nonintenders.

Intenders of all six birth control methods were more likely than nonintenders to believe each contraceptive was:

- easy to get
- easy to use, and
- morally acceptable to themselves.

Table 28

Significant Differences Between Intenders and Nonintenders on Behavioral Beliefs By Contraceptive Method (College Sample Only)

	CONTRACEPTIVE METHODS					
Outcomes	Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness		**	**	**	**	**
Major side effects	**	**	**			
Minor side effects			**			
Birth defects	**	**	**			
Easy to use	**	**	**	**	**	**
Lots of effort to use	**	**		**	**	**
Helps with cycle						**
Is "natural"	**	**	**	**	**	
Puts object in body						
Puts drug in body			**			
Morally acceptable	**	**	**	**	**	**
Have "on hand"			**			
Prevents VD				**	**	
Easy to hide	**	**				
Interrupts sex						
Reduces spontaneity			**			
Reduces male pleasure						
Reduces my pleasure				**		**
Is messy				**		
Male is responsible		**				
Easy to get	**	**	**	**	**	**
Must see MD						
Costs a lot						
Get supplies						

**p <.01

Favorable beliefs concerning "naturalness" differentiated withdrawal intenders from nonintenders. Rhythm was viewed as natural by all respondents, although intenders evaluated this attribute more positively. Both intenders and nonintenders were unlikely to believe the pill, IUD, diaphragm, and condom were natural, the latter group more so than the former. In terms of disadvantages, nonintenders were more likely to believe the pill, IUD, and diaphragm cause major side effects and birth defects than intenders. The reader is referred to the previous subsections for more details of significant results which were idiocyncratic to one or two contraceptives.

Table 29 presents the significant differences between intenders and nonintenders for outcome evaluation ratings. Recall that these ratings were not method-specific, but were generalized assessments of the "goodness or badness" of certain potential consequences. Thus, in testing the Fishbein-Ajzen model for each birth control method, these same data were repeatedly analyzed, although differentially categorized according to intention and experience; an increase in the chance for alpha errors was unavoidable. Therefore, these results must be viewed with caution.

Fewer differences between intenders and nonintenders were obtained across the contraceptive methods on outcome evaluations than were found for the behavioral beliefs. For the most part, both groups similarly viewed certain outcomes as "good," while others were "bad," as evidenced by the absence of stars in many of the spaces in Table 29. Most of the outcome evaluation ratings which

Table 29

Significant Differences Between Intenders and Nonintenders on Outcome Evaluations By Contraceptive Method (College Sample Only)

	CONTRACEPTIVE METHODS					
Outcomes	Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness						
Major side effects	**					
Minor side effects	**					
Birth defects						
Easy to use					**	**
Lots of effort to use			**			
Helps with cycle	**					
Is "natural"	**					**
Puts object in body		**	**	**		
Puts drug in body	**				**	**
Morally acceptable						
Have "on hand"			**	**		
Prevents VD						
Easy to hide						
Interrupts sex	**			**		
Reduces spontaneity				**		
Reduces male pleasure						
Reduces my pleasure						
Is messy				**		
Male is responsible				**		
Easy to get						
Must see MD				**		
Costs a lot						
Get supplies					**	

**p <.01

did produce significant differences were idiosyncratic to one or two methods. Only two evaluations yielded differences between intenders and nonintenders for more than two methods. First, with respect to the IUD, diaphragm, and condom, nonintenders were more negative than intenders toward using a method which puts an object or barrier device in the body. Second, pill intenders were less negative toward putting a chemical or drug in their bodies than were nonintenders; in contrast, withdrawal and rhythm intenders rated this attribute more negatively than nonintenders. In general, it appears that intentions to use each method were more under the influence of behavioral beliefs than outcome evaluations.

Table 30 presents the significant differences found for each contraceptive across the sexual experience and previous use categories on the behavioral beliefs. It should be noted that the responses of virgins were repeatedly analyzed for each contraceptive method. Thus, the chance for alpha errors across the set of analyses may have increased, as was the case in repeatedly examining differences in outcome evaluations. (Note, however, that the breakdown of nonvirgins into ever and never users for each contraceptive was not as subject to the same problem.)

For the pill, condom, withdrawal, and rhythm methods, most of the significant results reflected differences in response degree rather than opposing views. In contrast, analyses of the IUD and diaphragm indicated that significant findings were as often due to opposing views held by virgins and nonvirgins as due to variations

Table 30

Significant Differences Among Experience Groups on Behavioral Beliefs By Contraceptive Method (College Sample Only)

	CONTRACEPTIVE METHODS					
Outcomes	Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness	**					
Major side effects			**	**		
Minor side effects						
Birth defects						
Easy to use	**					**
Lots of effort to use						
Helps with cycle			**		**	
Is "natural"						
Puts object in body					**	
Puts drug in body						
Morally acceptable	**		**	**		
Have "on hand"			**			
Prevents VD	**	**		**	**	**
Easy to hide						
Interrupts sex						**
Reduces spontaneity			**			
Reduces male pleasure				**		
Reduces my pleasure						
Is messy			**			**
Male is responsible					**	
Easy to get	**				**	
Must see MD						
Costs a lot					**	
Get supplies					**	

**p <.01

in response degree.

Ajzen and Fishbein (1980) would argue that direct experience with the target in the past, in contrast to no experience, may serve to develop more realistic expectations regarding the personal consequences of behavior. Furthermore, they argue that the intentions of those with experience are likely to remain stable over time. Some support for these notions were found in the present study. As expected, ever users were more likely to intend to use methods with which they had had previous experience, and they also generally held the most favorable beliefs with respect to these methods. In addition, direct experience was associated with response polarity in judgments of both advantages and disadvantages. With respect to the pill, condom, and withdrawal methods, ever users tended to give the most extreme responses. For the rhythm method, the most extreme responses were given by both ever and never users.

With respect to the IUD and diaphragm, nonvirgins tended to be more extreme in their ratings than were virgins, although neither group held very favorable beliefs about these methods. Few significant differences were found, which is consistent with the fact that virgins and nonvirgins did not differ in their intentions to use either method.

The majority of significant differences highlighted in Table 30 were idiosyncratic to one or two contraceptive methods. The reader is referred to the previous subsections for a discussion of the

method-specific findings. Consistent with the notion that direct experience is associated with response extremity, ever users or nonvirgins as a whole were more likely to believe the pill, condom, and diaphragm were morally acceptable to themselves. Similarly, ever users of the condom were the most likely to believe this method prevents venereal diseases, whereas ever users or nonvirgins as a whole believed the opposite was true with respect to the pill, IUD, withdrawal, and rhythm methods.

Table 31 presents the significant differences for each contraceptive across the experience factor on the outcome evaluations. As previously noted, these results must be viewed with caution due to the fact that the same data were repeatedly analyzed across contraceptives. Again, most of the significant findings were idiosyncratic to one or two birth control methods. Similar patterns of results were obtained for more than two methods on three outcome evaluations. The following groups were the most positive toward using a method which is effective: (a) ever users of the pill and condom, (b) ever and never users of withdrawal and rhythm, and (c) with respect to the diaphragm, nonvirgins as a whole. Using a method which must be "on hand" at the time of intercourse was most negatively evaluated by (a) never users of rhythm, withdrawal, and condoms, and (b) with respect to the IUD, nonvirgins as a whole. Lastly, a mixture of groups most favorably evaluated ease of concealment including (a) ever users of the pill, (b) never users of rhythm, and (c) nonvirgins as a whole concerning the diaphragm.

Table 31

Significant Differences Among Experience Groups on Outcome Evaluations
By Contraceptive Method (College Sample Only)

	CONTRACEPTIVE METHODS					
Outcomes	Pill	IUD	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness	**		**	**	**	**
Major side effects						
Minor side effects		**		**		
Birth defects						
Easy to use					**	
Lots of effort to use						
Helps with cycle				**		
Is "natural"						
Puts object in body						
Puts drug in body						
Morally acceptable						
Have "on hand"		**		**	**	**
Prevents VD						
Easy to hide	**		**			**
Interrupts sex						
Reduces spontaneity						
Reduces male pleasure						
Reduces my pleasure						
Is messy						
Male is responsible						**
Easy to get	**			**		
Must see MD	**					
Costs a lot						
Get supplies						

**p <.01

Ratings of normative beliefs and motivations to comply were very consistent across contraceptives for intenders versus nonintenders. In summary, intenders of each contraceptive method under investigation were generally more likely (or less unlikely) than nonintenders to believe that significant referent persons or groups would approve of their using specific methods. Social influences on intentions to use each contraceptive were primarily under the influence of normative beliefs, rather than motivations to comply.

For the condom, IUD, and diaphragm, beliefs about social approval tended to reflect opposing views; that is, intenders believed most "significant others" would approve of their using specific methods, while nonintenders felt this to be unlikely. In contrast, responses with respect to the pill most often reflected differences in response degree rather than opposing views; intenders were more likely than nonintenders to believe others would approve of their using the pill. Judgments of social approval for withdrawal and rhythm deviated from the patterns noted above. Although intenders held more favorable views of social approval than did nonintenders, these differences were frequently due to the fact that nonintenders perceived social approval to be quite unlikely, while intenders believed social approval to be slightly unlikely, or, at best, a "fifty-fifty" chance.

In general, intenders and nonintenders were motivated to comply with what they believed doctors and their boyfriends wanted them to do, and were not motivated to comply with what they perceived to be

the opinions of their friends, parents, and people in their religion. Recall that the motivation to comply indices, like the outcome evaluations, were not method-specific, but were generalized assessments of the probability that one would conform to the perceived opinions of salient referent groups. In order to test the normative component of the Fishbein-Ajzen model for each contraceptive, the motivation to comply responses were repeatedly analyzed. Thus, these analyses may have been subject to an increased chance of alpha errors. Therefore, the motivation to comply findings must be viewed with caution.

Results were also consistent across contraceptives for different experience groups in terms of normative beliefs and motivations to comply. Judgments of whether most doctors and boyfriends would approve of using certain contraceptives produced significant differences across three or more birth control methods. Differential social approval ratings with respect to friends, parents, and people in one's own religion were idiosyncratic to one or two methods; for details of these results, the reader is referred to the previous subsections.

Ever users of the pill were the most likely to believe doctors would approve of their using this method; however, never users of withdrawal and rhythm were the most unlikely to believe this was true of these methods, followed by the ever users and then the virgins. Groups who were the most likely (or least unlikely) to believe their boyfriends would approve of using certain methods included (a) virgins with respect to condoms and condom ever users, and (b) ever

users of withdrawal and rhythm. Lastly, for each contraceptive, it was found that virgins were generally the only group motivated to comply with what they believed their parents wanted them to do.

An Alternative Approach to Predicting Intentions

Alternative decision analysis models are available for predicting intentions to perform a given behavior. Such an analytic approach, conceptually similar to social judgment theory (Hammond et al., 1975) was undertaken in this study. (The reader is referred to the INTRODUCTION for a detailed description of the analytic model examined here and social judgment theory.) The major goals of this analysis were to determine (a) whether a more parsimonious (requiring fewer measures) and content-specific set of predictor variables could be empirically-derived to predict contraceptive intentions and choice, and (b) whether this set of predictors could do as well as, or better than, the expectancy-value model components in predicting intentions and choice.

The first step was to seek a common set of predictor variables, across the contraceptive methods under study (see the INTRODUCTION for a justification of these analyses). For each method, the likelihood ratings for the set of twenty-four behavioral beliefs and five normative beliefs were factor analyzed. By default, seven or eight factors out of twenty-nine possible were produced with eigenvalues greater than one across the six methods. The eigenvalues across factors for each contraceptive dropped off dramatically after the third or fourth factor. In other words, the fourth through

eighth factors had eigenvalues which were close to 1.0, whereas, eigenvalues for the first through third factors tended to be 2.0 or greater. In addition, the pattern of coefficients for the fourth through the seventh or eighth factors were not clearly interpretable. For each contraceptive method, further analyses were performed specifying seven different factor solutions (i.e., NFACTORS = 2 through 8; Nie et al., 1975). The three-factor solutions for each method provided the most interpretable results. Three separate tables, one for each factor, were constructed listing the factor weights of all twenty-nine items specific to each contraceptive. A belief item was considered to load on a "common factor" if it had a factor weight of .40 or greater on at least four of the six contraceptive methods.

Three common factor scales were created for each method by (a) summing the raw scores on the method-specific behavioral and normative items determined to comprise each scale, and then (b) dividing the sum by the number of items in the scale. The division was performed in order to put each index on the original -3 to +3 scale. Note that the summation of raw scores resulted in unit weighting of the components of each scale.

The first scale was composed of nine items representing use advantages and social approval (i.e., is effective, easy to use, natural, morally acceptable, plus the five normative belief items). The second scale was composed of four items representing immediate negative effects on having sexual intercourse (i.e., interrupts sex,

reduces spontaneity, reduces my partner's pleasure and/or my own pleasure). The third scale consisted of six items measuring medically-related disadvantages (i.e., causes major and/or minor side effects, causes birth defects, puts a device and/or drug into my body, and must see a doctor to get the method). The positive or negative quality of each scale was determined on the basis of the sign of the item weights for each factor and by the average "good-bad" evaluations for each item. Overall, ten of the original twenty-four behavioral belief items were excluded from all scales.

Regression analyses were performed predicting intentions to use each method from the three common factor scales. These analyses are presented in Table 32. Again, given the number of analyses performed, only those results which reached the .01 alpha level were considered statistically significant (although findings significant at the .05 level are highlighted in accompanying tables, as before). In general, the results obtained using the common factor scales as predictors were similar to those obtained using the direct Fishbein-Ajzen model components (i.e., AB and SN) as predictors. The direct components model accounted for slightly more variance in intentions than did the common factor scale regressions for the pill, condom, withdrawal, and the rhythm methods; the opposite was true for the IUD and diaphragm (compare the multiple R-squared values in Table 2 versus Table 32). In contrast, the regression models using the indirect Fishbein-Ajzen model components (i.e., ΣBe and ΣNMc) accounted for slightly more variance in the intention measures than the common factor scale regressions for only the pill and condom;

Table 32

Univariate and Multivariate Predictions of Intention to Use Each Contraceptive Utilizing the Common Factor Indices As Predictors (College Sample Only)

	Contraceptive Methods					
	PILL		IUD		DIAPHRAGM	
Predictor Variables[a]	r	B	r	B	r	B
Use Advantages/Social Approval	.72	.70**	.67	.66**	.71	.70**
Negative Effects on Sex	-.12	-.05	-.04	.05	.12	.14**
Medical Disadvantages	-.18	-.13**	-.18	-.10*	-.19	-.13**
R		.73**		.68**		.74**
R^2		.54		.46		.54
df		3,263		3,266		3,264

	CONDOM		WITHDRAWAL		RHYTHM	
	r	B	r	B	r	B
Use Advantages/Social Approval	.70	.68**	.70	.70**	.74	.74**
Negative Effects on Sex	-.26	-.11*	-.13	-.04	-.13	.01
Medical Disadvantages	-.07	-.01	-.09	-.01	.05	.07
R		.72**		.70**		.74**
R^2		.51		.50		.55
df		3,264		3,264		3,262

*p <.05
**p <.01

[a]The common factor indices are described more fully in the text.

the opposite was true for the IUD, diaphragm, withdrawal, and rhythm methods.

The first common factor scale carried the largest significant beta weight in each regression as shown in Table 32. In general, perceived use advantages and social approval were strongly related to intentions to use each method. For the pill and diaphragm, the stronger the intention to use each method, the less likely the method was perceived to lead to medically-related disadvantages. (To a lesser extent, this was also true for the IUD.) Interestingly, the stronger the intention to use the diaphragm, the more likely the method was perceived to cause immediate negative effects on having sexual intercourse. Apparently, respondents with stronger positive intentions to use a diaphragm are willing to risk such negative effects to attain other use advantages and social approval, and to avoid medically-related disadvantages. In contrast, women who intended to use the condom were unlikely to believe this method has negative effects on having sexual intercourse (however, this finding was significant at only the .05 level).

To parallel the analyses done with the Fishbein-Ajzen model, two-by-two and two-by-three MANOVAs were performed using the intend versus not intend measure, and the two- or three-level sexual experience and previous use measures as independent variables, with the common factor scale scores as the dependent measures. Unweighted marginal means for the univariate analyses on each contraceptive method are presented in Tables 33 through 38.

For the pill, the multivariate results for the intention by experience interaction term, the intention main effect, and the experience main effect were all significant (i.e., $p < .02$, $p < .001$, and $p < .004$, respectively). Univariate results indicated that both main effects as well as the interaction term were significant for only the first common factor (the interaction term was significant at $p < .003$). A comparison of cell means for this dependent measure (not presented in Table 33) revealed that the virgin-nonintenders did not believe the pill has use advantages and/or would meet with social approval (mean = -0.60); however, ever and never users who also did not intend to use the pill were neutral or believed this was slightly likely to be true (means = 0.48 and 0.08, respectively). In contrast, virgins, ever, and never users who intended to use the pill believed it was likely to have use advantages and would meet with social approval (means = 1.40, 1.65, and 1.29, respectively).

For the other five contraceptives under investigation, the multivariate F-values for the intention by experience interaction term were nonsignificant; thus, none of the corresponding univariate results were considered significant. In each case, the multivariate intention main effect was significant at the .001 level. The multivariate experience main effect was significant only for the condom, withdrawal, and rhythm methods ($p < .001$, $p < .02$, and $p < .001$, respectively).

The univariate analyses indicated that women who intended to use the IUD, diaphragm, condom, withdrawal, or rhythm methods believed

Table 33

Mean Ratings of the Pill on the Common Factor Indices by Intention and Experience (College Sample Only)

Common Factor Indices[a]	Intention		Sexual Experience and Previous Use		
	Not Intend	Intend	Virgins	Ever Users	Never Users
Use Advantages/ Social Approval	-0.02	1.45**	0.40	1.07	0.68**
Negative Effects on Sex	-2.33	-2.32	-2.14	-2.56	-2.26
Medical Disadvantages	1.46	1.17*	1.22	1.33	1.41
N =	86	175	112	69	80

*$p < .05$

**$p < .01$

[a]These indices are described in the text.

these contraceptives had use advantages and would meet with social approval, whereas, nonintenders held the opposite view (see Tables 34 through 38). In addition, ever users of the condom and nonintenders were more likely than the other groups to believe this method has a negative effect on sexual intercourse. With respect to withdrawal, ever users were the most unlikely to believe coitus interruptus has medically-related disadvantages. Virgins and ever users of rhythm thought it was slightly likely that this method has use advantages and would be socially approved of, whereas never users believed this to be unlikely.

In summary, intenders of each method were more likely than nonintenders to believe they could gain use advantages and social approval if they used certain methods. Results were mixed in terms of whether each method was perceived to have negative effects on sexual intercourse or lead to medically-related disadvantages. Use advantages and social approval apparently outweigh these potential costs for intenders. As before, ever users, and to a lesser extent, nonvirgins in comparison to virgins, tended to give the most extreme responses. All in all, these results are very similar to those obtained with the Fishbein-Ajzen model.

Scale Construction and Reliability for the Clinic Sample

The previous subsection concluded the analyses examining absolute judgments of intentions for the college sample. Data were also collected from a clinic sample to determine the generalizability of results. Thus, the indices developed on the basis of the college

Table 34

Mean Ratings of the IUD on the Common Factor Indices by Intention and Experience (College Sample Only)

Common Factor Indices[a]	Intention		Sexual Experience	
	Not Intend	Intend	Virgins	Nonvirgins
Use Advantages/ Social Approval	-1.11	0.71**	-0.29	-0.11
Negative Effects on Sex	-1.04	-1.40	-1.00	-1.44
Medical Disadvantages	1.00	0.64	0.74	0.90
N =	219	39	109	149

**$p < .01$

[a]These indices are described in the text.

Table 35

Mean Ratings of the Diaphragm on the Common Factor Indices by Intention and Experience (College Sample Only)

	Intention		Sexual Experience	
Common Factor Indices[a]	Not Intend	Intend	Virgins	Nonvirgins
Use Advantages/ Social Approval	-0.82	0.91**	-0.02	0.12
Negative Effects on Sex	-0.33	0.03	-0.26	-0.04
Medical Disadvantages	0.55	0.31	0.52	0.35
N =	172	84	112	144

**$p < .01$

[a]These indices are described in the text.

Table 36

Mean Ratings of the Condom on the Common Factor Indices by Intention and Experience (College Sample Only)

	Intention		Sexual Experience and Previous Use		
Common Factor Indices[a]	Not Intend	Intend	Virgins	Ever Users	Never Users
Use Advantages/ Social Approval	-0.64	0.94**	0.10	0.38	-0.03*
Negative Effects on Sex	1.18	0.59**	0.48	1.17	1.03**
Medical Disadvantages	-1.68	-1.80	-1.51	-1.93	-1.78*
N =	92	163	109	83	63

*$p < .05$

**$p < .01$

[a]These indices are described in the text.

Table 37

Mean Ratings of Withdrawal on the Common Factor Indices by Intention and Experience (College Sample Only)

Common Factor Indices[a]	Intention		Sexual Experience and Previous Use		
	Not Intend	Intend	Virgins	Ever Users	Never Users
Use Advantages/ Social Approval	-1.20	0.27**	-0.44	-0.26	-0.70
Negative Effects on Sex	1.19	0.92	1.03	1.11	1.03
Medical Disadvantages	-2.25	-2.31	-1.96	-2.55	-2.33**
N =	175	82	109	84	64

**$p < .01$

[a]These indices are described in the text.

Table 38

Mean Ratings of Rhythm on the Common Factor Indices by Intention and Experience (College Sample Only)

Common Factor Indices[a]	Intention		Sexual Experience and Previous Use		
	Not Intend	Intend	Virgins	Ever Users	Never Users
Use Advantages/ Social Approval	-0.51	1.01**	0.39	0.49	0.14**
Negative Effects on Sex	-0.45	-0.89*	-0.37	-0.97	-0.67
Medical Disadvantages	-2.32	-2.13	-1.99	-2.43	-2.25*
N =	154	98	110	52	90

*p <.05

**p <.01

[a]These indices are described in the text.

sample responses were similarly constructed for the clinic sample, where possible. The Fishbein-Ajzen model components, measuring intentions, the direct and indirect attitude toward the behavior indices (AB and ΣBe, respectively) and the direct and indirect subjective norm indices (SN and ΣNMc, respectively) were constructed in the same manner for the clinic sample as was described in the Construction of Indices for the College Sample subsection.

The internal consistency or alpha levels for these scales on the clinic data were very similar to those obtained on the college sample. (All reliability indices for the Fishbein-Ajzen model components were based on a sample size of 40; there were no missing data for these scales.) Cronbach's alpha for the three-item composite intention measure ranged from .85 for the condom to .97 for the withdrawal method. Similarly, the four-item AB measure yielded alpha levels ranging from .80 for the condom and withdrawal to .89 for the pill. As with the college sample, the indirect attitude toward the behavior indices (e.g., ΣBe) were less internally consistent than were the other Fishbein-Ajzen model components; Cronbach's alpha ranged from .48 for the diaphragm to .62 for the pill. In general, the lower internal consistency found for the ΣBe index across both samples is not surprising, given that this measure deals with a wide variety of considerations (e.g., messiness, effectiveness), while the other model components are more unidimensional. Lastly, the reliabilities of the indirect subjective norm indices (i.e., ΣNMc) were uniformly high, ranging from .75 for the pill to .84 for the withdrawal

and rhythm methods.

In general, the pattern of reliability results for the Fishbein-Ajzen model components was very similar for the college and clinic samples. One exception is that the alpha levels obtained with respect to the indirect attitude toward the behavior indices (e.g., ΣBe) for the clinic sample were somewhat lower across contraceptives than they were for the college sample.

Predictions of Absolute Judgments of Intention for the Clinic Sample

Table 39 presents the zero-order correlations, beta weights, and multiple correlation coefficients for predicting each composite intention index, using the direct and indirect Fishbein-Ajzen model predictors specific to each contraceptive method. As was found with the college sample, the direct AB and SN measures successfully predicted intentions to use each contraceptive. The proportion of variance accounted for in the dependent measures ranged from .32 for the withdrawal method to .72 for the diaphragm. The relative size and significance of the beta weights for the direct predictor variables revealed some differences between the clinic and college sample results.

Recall that for the college sample, both direct components significantly contributed to the prediction of intentions to use each method and that the AB measure always had the larger positive beta weight in each regression equation. Results obtained from the clinic sample were less consistent, perhaps due to the smaller number of clinic respondents. For predicting intentions to use the condom,

Table 39

Univariate and Multivariate Predictions of Intention to Use Each Contraceptive (Clinic Sample Only)

Predictor Variables	Contraceptive Methods											
	Pill		IUD		Diaphragm		Condom		Withdrawal		Rhythm	
Direct Model Components	r	B	r	B	r	B	r	B	r	B	r	B
AB	.63	.43**	.74	.55**	.69	.38**	.65	.54**	.56	.45*	.66	.55**
SN	.71	.55**	.66	.37**	.79	.58**	.49	.24	.46	.16	.49	.25
R		.81**		.81**		.85**		.68**		.57**		.70**
R^2		.66		.65		.72		.47		.32		.49
df		2,37		2,37		2,37		2,37		2,37		2,37
Indirect Model Components												
ΣBe	.22	.20	.45	.18	.18	-.02	.40	.14	.29	.13	.29	.18
ΣNMc	.48	.47**	.75	.68**	.68	.69**	.56	.49**	.42	.37*	.42	.37*
R		.52*		.77**		.68**		.58**		.44*		.46*
R^2		.27		.59		.47		.33		.19		.21
df		2,37		2,37		2,37		2,37		2,37		2,37

*p <.05
**p <.01

withdrawal, and rhythm methods, the direct SN measure did not yield a significant beta weight. In addition, for four out of six contraceptives (i.e., the IUD, condom, withdrawal, and rhythm methods) the AB index carried a larger beta weight than did the SN measure; however, the opposite was true for two of six birth control methods (i.e., the pill and diaphragm).

For comparative purposes, the indirect model components (e.g., ΣBe and ΣNMc) were also utilized in regression equations to predict intentions. Again, it was found that results obtained from the two samples were somewhat different. With the college sample, both components significantly contributed to prediction and the ΣNMc measure had a larger beta weight than did the ΣBe index for five out of the six contraceptives. Only the ΣNMc measures had significant beta weights in the regression equations predicting intentions for the clinic sample; none of the ΣBe indices significantly contributed to predictions. The variance in the dependent measures accounted for ranged from .19 for the withdrawal method to .59 for the IUD in the clinic sample. As was found with the college sample, the direct component indices were better predictors of intentions to use each method than were the indirect component measures.

Several methodological and psychometric problems were previously described to explain why: (a) the direct components were better predictors of intentions than the indirect components, (b) a reversal in the relative sizes of the beta weights for the direct versus the indirect components was obtained, and (c) certain components within

each pair yielded larger beta weights for the college sample. For the most part, these same issues apply to the results obtained from the clinic sample because, in general, a similar though less statistically significant pattern of results were obtained. For example, the intercorrelations among the predictor variables for the clinic sample, as shown in Table 40, reveal the same problems with convergent and discriminant validity found with the college sample. In addition, the clinic sample findings may be somewhat unreliable and less statistically significant given the small sample size. For the college sample, it was concluded that both attitudinal and normative influences seem to affect intentions to use different methods of birth control. Because of methodological and psychometric problems, the relative contribution of each construct to the prediction of intentions was unclear. These same conclusions are applicable to the clinic sample data.

An Examination of Whether "External" Variables Improve the Prediction of Intentions for the Clinic Sample

As previously noted, Fishbein (1979) proposed that variables external to the model (e.g., other attitudes, personality factors, demographics) will not significantly increase the predictability of intentions, over and above the variance which can be explained by the direct model components. As with the college sample data, this hypothesis was tested using a number of regression analyses. External variables were individually added to the equation predicting intentions, which contained the direct model components as explanatory variables (i.e., AB and SN). Then, the increments in the multiple

Table 40

Intercorrelations Among the Fishbein Model Components
by Contraceptive Method (Clinic Sample Only)

Direct Model Components by Contraceptive Method

		Pill		IUD		Diaphragm		Condom		Withdrawal		Rhythm	
		AB	SN	AB	SN	AB	SN	AB	SN	AB	SN	AB	SN
Indirect Model Components	ΣBe	.34*	.28	.56**	.54**	.33*	.39*	.29	.38*	.59**	.53**	.39*	.18
	ΣNMc	.11	.69**	.50**	.80**	.53**	.82**	.48**	.74**	.59**	.68**	.51**	.65**

*p <.05

**p <.01

Note. N = 40

R-squared value were tested for significance.

Several of the external variables utilized in the college sample analyses were not used in analyses of the clinic sample data due to a lack of variability. These variables included: race (all respondents were black), religion (75% of respondents were Protestant), the religion by strength of religious belief interaction, parental socio-economic status (due to low variability and too much missing data), and current living situation (75% lived with relatives). In terms of sexual experience and previous use, all clinic respondents were nonvirgins. These nonvirgins could be divided into ever and never users for only the condom and withdrawal methods. There were 27 ever users and 13 never users for the condom, and 12 ever users versus 28 never users for the withdrawal method. All but one respondent had used the pill sometime. In contrast, only five or six respondents had ever used the IUD, diaphragm, or rhythm methods. Thus, a previous use variable was constructed only for the condom and withdrawal methods.

Education level for the clinic sample was coded into three dummy variables representing "never gone to college," "currently in college," and "has had some college in the past." The first two dummy variables were used in the regression analyses. Two sexual experience variables were added: age at first intercourse and how long respondents had been sexually active (i.e., current age minus age at first intercourse). A detailed description of the remaining variables utilized in the analyses presented in this subsection can be found in

Appendix D.

Tables 41 through 46 present the results of analyses, for each birth control method, testing the increment in the multiple R-squared value after each external variable was individually added to the regression equations predicting intentions, which contained the direct model components as explanatory variables. As with the college sample, the external variables generally did not improve the prediction of intentions beyond that achieved by the direct model components. For four of the six contraceptives, none of the external variables significantly contributed to prediction. Only two significant results were obtained out of sixty-two tests which is what could be expected by chance alone. Thus, even these two findings should be interpreted with caution. It was found that the stronger respondents' religious beliefs, the more likely they were to intend to use rhythm ($r = .24$ and beta = .23). Also, the number of years respondents had been sexually active yielded a significant increment in prediction for intentions to use the withdrawal method. A crosstabulation revealed that only two of forty respondents had a positive intention to use withdrawal; the remainder were neutral or did not intend to use this method. Thus, the longer respondents had been sexually active, the less unlikely they were to intend to use withdrawal ($r = .24$ and beta = .27).

Analyses of the two sexual experience variables, age at first intercourse and number of years respondents had been sexually active, were performed on the nonvirgin subgroup in the college sample for

Table 41

Increments in Prediction of Intention to Use the Pill Due to Each External Variable (Clinic Sample Only)

Predictor Variables[a]	Multiple Regression Results		
	R^2	R^2 change	df for R^2 change
AB + SN alone	.662	--	--
With: Strength of Religious Belief	.681	.019	1,36
Education Level	.668	.005	2,35
Current Age	.663	.000	1,36
Estimated Number of Times Will Have Sex in Next 6 Months	.678	.016	1,36
How Likely Sex Will Be Unplanned in the Next 6 Months	.668	.005	1,36
Age at First Intercourse	.686	.024	1,36
How Long Have Been Sexually Active	.677	.014	1,36
Locus of Control: Chance	.671	.009	1,36
Locus of Control: Personal Control	.665	.003	1,36
Locus of Control: Medical Personnel	.663	.001	1,36

[a]External variables are described in the text and Appendix D.

Note. No external variable significantly incremented the R^2 value shown in the first row.

Table 42

Increments in Prediction of Intention to Use the IUD Due to Each External Variable (Clinic Sample Only)

Predictor Variables[a]	Multiple Regression Results R^2	R^2 Change	df for R^2 Change
AB + SN alone	.651	--	--
With: Strength of Religious Belief	.659	.008	1,36
Educational Level	.670	.019	2,35
Current Age	.654	.003	1,36
Estimated Number of Times Will Have Sex in Next 6 Months	.654	.003	1,36
How Likely Sex Will Be Unplanned in Next 6 Months	.664	.013	1,36
Age at First Intercourse	.652	.001	1,36
How Long Have Been Sexually Active	.651	.000	1,36
Locus of Control: Chance	.655	.005	1,36
Locus of Control: Personal Control	.658	.007	1,36
Locus of Control: Medical Personnel	.652	.001	1,36

[a]External variables are described in the text and Appendix D.

Note. No external variable significantly incremented the R^2 value shown in the first row.

Table 43

Increments in Prediction of Intention to Use the Diaphragm Due to Each External Variable (Clinic Sample Only)

Predictor Variables[a]	Multiple Regression Results		
	R^2	R^2 Change	df for R^2 Change
AB + SN alone	.722	--	--
With: Strength of Religious Belief	.722	.000	1,36
Education Level	.752	.030	2,35
Current Age	.724	.002	1,36
Estimated Number of Times Will Have Sex in Next 6 Months	.724	.002	1,36
How Likely Sex Will Be Unplanned in Next 6 Months	.726	.004	1,36
Age at First Intercourse	.723	.001	1,36
How Long Have Been Sexually Active	.726	.004	1,36
Locus of Control: Change	.724	.002	1,36
Locus of Control: Personal Control	.722	.000	1,36
Locus of Control: Medical Personnel	.724	.002	1,36

[a]External variables are described in the text and Appendix D.

Note. No external variable significantly incremented the R^2 value shown in the first row.

Table 44

Increments in Prediction of Intention to Use the Condom Due to Each External Variable (Clinic Sample Only)

	Multiple Regression Results		
Predictor Variables[a]	R^2	R^2 Change	df for R^2 Change
AB + SN alone	.467	--	--
With: Strength of Religious Belief	.467	.000	1,36
Education Level	.542	.075	2,35
Current Age	.470	.003	1,36
Estimated Number of Times Will Have Sex in Next 6 Months	.493	.027	1,36
How Likely Sex Will Be Unplanned in Next 6 Months	.467	.000	1,36
Previous Use of Condom	.468	.001	1,36
Age at First Intercourse	.487	.020	1,36
How Long Have Been Sexually Active	.472	.005	1,36
Locus of Control: Chance	.474	.007	1,36
Locus of Control: Personal Control	.478	.011	1,36
Locus of Control: Medical Personnel	.480	.013	1,36

[a]External variables are described in the text and Appendix D.

Note. No external variable significantly incremented the R^2 value shown in the first row.

Table 45

Increments in Prediction of Intention to Use Withdrawal Due to Each External Variable (Clinic Sample Only)

	Multiple Regression Results		
Predictor Variables[a]	R^2	R^2 Change	df for R^2 Change
AB + SN alone	.324	--	--
With: Strength of Religious Belief	.342	.018	1,36
Education Level	.361	.036	2,35
Current Age	.382	.058	1,36
Estimated Number of Times Will Have Sex in Next 6 Months	.324	.000	1,36
How Likely Sex Will Be Unplanned in Next 6 Months	.333	.008	1,36
Previous Use of Withdrawal	.343	.018	1,36
Age at First Intercourse	.338	.014	1,36
How Long Have Been Sexually Active	.398	.074*	1,36
Locus of Control: Chance	.325	.000	1,36
Locus of Control: Personal Control	.325	.000	1,36
Locus of Control: Medical Personnel	.350	.025	1,36

[a]External variables are described in the text and Appendix D.

*$p < .05$

Table 46

Increments in Prediction of Intention to Use Rhythm Due to Each External Variable (Clinic Sample Only)

Predictor Variables[a]	Multiple Regression Results		
	R^2	R^2 Change	df for R^2 Change
AB + SN alone	.490	--	--
With: Strength of Religious Belief	.542	.052*	1,36
Education Level	.547	.057	2,35
Current Age	.501	.011	1,36
Estimated Number of Times Will Have Sex in Next 6 Months	.502	.012	1,36
How Likely Sex Will Be Unplanned in Next 6 Months	.490	.000	1,36
Age at First Intercourse	.496	.006	1,36
How Long Have Been Sexually Active	.490	.000	1,36
Locus of Control: Chance	.505	.015	1,36
Locus of Control: Personal Control	.497	.007	1,36
Locus of Control: Medical Personnel	.520	.030	1,36

[a]External variables are described in the text and Appendix D.

*$p < .05$

comparative purposes. Neither of these variables significantly accounted for residual variance in the intention measures beyond that explained by the direct AB and SN components for five of the six contraceptive methods. Significant results were obtained for the rhythm method. The older respondents had been when they first had intercourse and the shorter the length of time since they had begun having intercourse, the more likely they were to intend to use rhythm ($r = .14$ and beta = .13, $r = -.20$ and beta = -.12, respectively). The age at first intercourse measure accounted for 2% of the residual variance ($p < .05$) and the number of years sexually active variable accounted for 1.4% of the residual variance in intentions ($p < .05$).

As with the college sample analyses, it was found that external variables generally did not improve the prediction of intentions beyond that explained by the direct Fishbein-Ajzen model components. Thus, the expectancy-value hypothesis regarding the irrelevance of external variables to prediction was partially supported. However, given the small sample size for the clinic data, external variables had to account for at least 5% of the residual variance in order to achieve statistical significance in most cases. Trends in the data indicate that education level, strength of religious belief, future expectations about the frequency of intercourse, and locus of control beliefs regarding the perceived influence of medical personnel on pregnancy outcomes may have been found to be significant predictors of intentions to use certain methods, if the clinic sample size had been larger.

The patterns of significant and marginal, but nonsignificant, findings were somewhat unique for each contraceptive method, as was found in the analyses of the college sample data. In terms of variables used in both sets of analyses, there was little correspondence between the overall pattern of findings across the two samples. In general, the evidence available for both the college and clinic samples indicated that external variables were of little or no importance in comparison to the direct Fishbein-Ajzen model components for predicting intentions.[2]

An Overview of Analyses Utilized to Examine Why Clinic Respondents Differ in Their Intentions

As previously noted, once it is determined that both attitudinal and normative influences affect intentions, it is of interest to examine individual behavioral and normative beliefs, outcome evaluations and motivations to comply with "significant others" to gain an understanding of why intenders differ from nonintenders. With the college sample, differences in beliefs, evaluations, and so forth across groups defined by their sexual experience and previous use of each method were also of interest. It was found that variations in experience improved the prediction of intentions beyond what could be accounted for by the direct Fishbein-Ajzen model components alone. In addition, virgins, ever users and never users differed in their beliefs, evaluations, and motivations to comply, which presumably lead

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[2]Analyses of order effects, another type of external variable, were not performed on the clinic sample because the sample size per version of the survey was too small.

to their differential intentions. Because of limited variability in experience among respondents, the clinic sample could not be divided into ever and never users, except in the case of the condom and withdrawal methods. Additional regressions revealed that previous use did not augment the prediction of intentions to use condoms or withdrawal beyond the variance explained by the direct model components. Thus, individual differences in beliefs, evaluations, and motivations to comply were not explored across the experience variable for the clinic sample.

The composite intention index for each contraceptive method was dichotomized to produce groups of intenders versus nonintenders (as with the college sample data, respondents who were "neutral" on these measures were excluded from later analyses). An examination of group frequencies revealed that further statistical analyses for the withdrawal and rhythm methods would be inappropriate; there were only two respondents who intended to use each method (three respondents were "neutral" on the intention measures in each case). The most popular method was the pill for both the college and clinic samples. In the latter case, thirty-four of forty respondents intended to use the pill and five did not (one respondent was neutral). Respondents were more evenly divided between the intend versus not intend groups for the IUD, diaphragm, and condom. Ten, sixteen, and nineteen respondents intended to use each method, respectively; likewise, twenty-eight, twenty, and twenty did not intend to use these methods (two, four, and one respondent(s) were neutral on these

intention measures, respectively).

As with the college sample, MANOVA's were performed on the sets of behavioral and normative beliefs, outcome evaluations, and motivations to comply for the pill, IUD, diaphragm, and condom methods, utilizing the intend versus not intend categorizations as the independent variables. The significance of the multivariate F-values for these analyses are presented in Table 47. Recall that multivariate analyses were performed on the college sample data as a first step in determining the overall significance of a set of variables, before examining univariate findings. If the multivariate F-value for a given set was not significant at the .05 level or better, univariate results were not interpreted or were treated as suggestive rather than statistically significant. In this way, it was hoped that alpha errors might be reduced.

As shown in Table 47, only six of the sixteen multivariate tests performed on the clinic sample reached statistical significance. For the behavioral belief item sets, the multivariate F-value for the pill was marginally significant, while the remainder were nonsignificant. Analyses of the outcome evaluation item sets were significant for the pill and condom only (marginal significance was obtained for the IUD). All tests for the normative belief items were significant, while none reached significance for the set of motivation to comply items.

Given the exploratory nature of this study, particularly with respect to the clinic sample, univariate t-test analyses comparing

Table 47

Significance of Multivariate Tests on Beliefs, Outcome Evaluations and Motivations to Comply for Intenders Versus Nonintenders by Contraceptive Method (Clinic Sample Only)

Fishbein Model Components	Contraceptive Methods			
	Pill	IUD	Diaphragm	Condom
Behavioral Beliefs	.07	n.s.	n.s.	n.s.
Outcome Evaluations	.007	.07	n.s.	.03
Normative Beliefs	.001	.001	.001	.001
Motivations to Comply	n.s.	n.s.	n.s.	n.s.

intenders to nonintenders of each contraceptive method were nevertheless performed on the individual behavioral and normative belief, outcome evaluation, and motivation to comply items. These analyses are presented in Tables 48 through 55. Because group sizes were small and multiple t-tests were performed, all results should be considered suggestive rather than statistically significant. These findings are presented for comparison to the college sample analyses. Up to six findings for each set of variables per method are reported on the basis of the following criteria: (a) if the t-test was significant at the .05 level or better, and/or (b) if the difference between means was not statistically significant but was roughly one scale unit or more. The reader is referred to the accompanying tables for details of the results.

Differences between clinic intenders and nonintenders on beliefs, evaluations, and motivations to comply for the pill. Table 48 presents the mean ratings of pill intenders and nonintenders on the behavioral beliefs and outcome evaluations. In terms of advantages, intenders were more likely than nonintenders to believe the pill:

- does not require a lot of effort or motivation to use,
- is natural, and
- is morally acceptable.

Additionally, intenders more positively evaluated using a method which is morally acceptable.

Intenders more negatively evaluated several characteristics not associated with using the pill than did nonintenders, including:

Table 48

Mean Ratings of the Pill on Behavioral Beliefs and Outcome Evaluations by Intention (Clinic Sample Only)

	Behavioral Beliefs		Outcome Evaluations	
Outcomes	Not Intend	Intend	Not Intend	Intend
Effectiveness	2.80	2.59	3.00	2.76
Major side effects	0.60	0.50	-2.40	-2.50
Minor side effects	0.40	0.71	0.00	-1.09
Birth defects	1.00	0.15	-3.00	-2.82
Easy to use	2.80	2.71	2.80	2.68
Lots of effort to use	0.40	-1.12	1.20	-0.35
Helps with cycle	2.40	0.71	1.00	2.26
Is "natural"	-0.60	1.00	2.20	1.35
Puts object in body	-2.00	0.15	1.40	-1.50**
Puts drug in body	2.40	2.06	-1.00	-0.35
Morally acceptable	1.00	2.44*	1.40	2.35*
Have "on hand"	0.40	-0.24	0.00	-1.29
Prevents VD	-1.80	-1.29	3.00	2.88
Easy to hide	2.00	2.68	1.00	1.97
Interrupts sex	-3.00	-2.12	-2.40	-1.91
Reduces spontaneity	-3.00	-2.29	-1.00	-1.56
Reduces male pleasure	-2.80	-2.32	-2.40	-2.12
Reduces my pleasure	-3.00	-2.50	-2.80	-2.21
Is messy	-3.00	-2.50	-1.20	-2.71**
Male is responsible	-2.80	-1.97	-1.80	-0.35
Easy to get	2.60	1.65	2.60	2.29
Must see MD	2.80	2.71	2.00	2.35
Costs a lot	-0.80	-0.47	0.00	-1.65*
Get supplies	1.80	2.21	0.60	1.62
N =	5	34	5	34

*p <.05

**p <.01

·requires a lot of effort or motivation to use,

·messiness, and

·costs a lot of money.

Interestingly, nonintenders were more likely than intenders to believe the pill (a) helps with hormonal or menstrual cycle problems, and (b) is easy to get. Lastly, nonintenders believed it was unlikely that the pill puts an object or barrier device in the body and judged such an outcome to be positive; in contrast, intenders believed this to be neither likely nor unlikely, but felt such an outcome would be negative.

Table 49 presents the mean ratings of pill intenders versus nonintenders on the normative belief and motivation to comply items. Clinic respondents who intended to use the pill were more likely than nonintenders to believe most doctors, their friends, and to a lesser extent, their parents and boyfriends would approve of their using this method. Intenders were somewhat more motivated than nonintenders to comply with their perceptions of what their boyfriends and parents wanted them to do with respect to using birth control. Nonintenders were more unmotivated to comply with what they believed people in their religion wanted them to do than intenders.

Differences between clinic intenders and nonintenders on beliefs, evaluations, and motivations to comply for the IUD. Mean ratings of the IUD for intenders and nonintenders on the behavioral beliefs and outcome evaluations are presented in Table 50. IUD intenders were more likely than nonintenders to believe this method is:

Table 49

Mean Ratings of the Pill on Normative Beliefs
and Motivations to Comply by Intention (Clinic Sample Only)

	Normative Beliefs		Motivation to Comply	
Referent Groups	Not Intend	Intend	Not Intend	Intend
Most doctors	0.80	2.35**	6.40	6.65
My friends	0.60	2.79**	2.00	2.38
My parents	0.60	2.18	3.40	4.26
People in my religion	0.00	0.68	1.60	2.76
My boyfriend	1.20	2.53	2.40	4.74*
N =	5	34	5	34

*p <.05

**p <.01

Table 50

Mean Ratings of the IUD on Behavioral Beliefs
and Outcome Evaluations by Intention (Clinic Sample Only)

	Behavioral Beliefs		Outcome Evaluations	
Outcomes	Not Intend	Intend	Not Intend	Intend
Effectiveness	0.25	1.80**	2.82	2.70
Major side effects	1.11	0.30	-2.29	-3.00
Minor side effects	1.36	0.80	-0.68	-1.70
Birth defects	0.75	-0.80 *	-2.79	-3.00
Easy to use	-0.54	1.00	2.57	2.80
Lots of effort to use	0.29	-1.30	0.07	-0.70
Helps with cycle	-1.18	-1.80	2.04	2.20
Is "natural"	-2.07	-1.10	1.46	2.00
Puts object in body	1.50	1.70	-1.79	0.80 **
Puts drug in body	-0.46	-0.80	-0.54	-0.50
Morally acceptable	-1.57	1.30 **	2.18	2.20
Have "on hand"	-0.18	0.90	-1.00	-1.20
Prevents VD	-1.29	-1.70	2.86	3.00
Easy to hide	2.39	2.50	1.75	2.00
Interrupts sex	-1.29	-1.50	-1.96	-2.00
Reduces spontaneity	-1.43	-1.10	-1.43	-1.40
Reduces male pleasure	-0.54	-1.90 *	-2.14	-2.10
Reduces my pleasure	-0.79	-1.00	-2.39	-1.90
Is messy	-0.79	-1.20	-2.36	-2.70
Male is responsible	-1.93	-3.00	-0.93	0.30
Easy to get	-0.25	0.90	2.18	2.60
Must see MD	2.54	2.70	2.18	2.60
Costs a lot	0.00	1.30	-1.50	-1.10
Get supplies	1.21	0.60	1.14	2.10
N =	28	10	28	10

*p <.05

**p <.01

- effective,
- easy to use, and
- morally acceptable.

Likewise, intenders were more unlikely to believe IUDs (a) cause birth defects, and (b) reduce their partner's sexual pleasure. Both groups agreed the IUD puts an object or barrier device in the body; however, intenders rated such a characteristic more positively than did nonintenders.

In terms of disadvantages, IUD intenders were more likely than nonintenders to believe this method costs a lot. Both groups believed IUDs cause minor side effects, but intenders rated such an outcome more negatively than nonintenders.

Table 51 presents the mean ratings of the IUD for intenders versus nonintenders on the individual items comprising the normative components of the Fishbein-Ajzen model. Intenders believed that each referent person or group would approve of their using an IUD, whereas nonintenders held the opposite view. None of the differences in mean ratings on the motivation to comply measures were one scale unit apart. Nonintenders were slightly motivated to comply with what they believed their parents and boyfriends wanted them to do, whereas intenders were slightly unmotivated to do so.

Differences between clinic intenders and nonintenders on beliefs, evaluations, and motivations to comply for the diaphragm. Mean ratings of diaphragm intenders versus nonintenders on the behavioral beliefs and outcome evaluations are presented in Table 52. Intenders

Table 51

Mean Ratings of the IUD on Normative Beliefs
and Motivations to Comply by Intention (Clinic Sample Only)

	Normative Beliefs		Motivation to Comply	
Referent Groups	Not Intend	Intend	Not Intend	Intend
Most doctors	-0.68	2.20**	6.57	6.50
My friends	-1.00	1.20**	2.46	1.70
My parents	-1.79	1.00**	4.18	3.80
People in my religion	-1.71	1.30**	2.50	2.60
My boyfriend	-1.14	1.80**	4.50	3.90
N =	28	10	28	10

**p <.01

Table 52

Mean Ratings of the Diaphragm on Behavioral Beliefs and Outcome Evaluations by Intention (Clinic Sample Only)

	Behavioral Beliefs		Outcome Evaluations	
Outcomes	Not Intend	Intend	Not Intend	Intend
Effectiveness	0.65	1.69**	2.85	2.81
Major side effects	-1.15	-1.00	-2.35	-2.63
Minor side effects	-0.10	0.50	-0.85	-0.94
Birth defects	-1.15	-0.81	-2.85	-2.81
Easy to use	-0.35	0.94	2.60	-2.69
Lots of effort to use	0.25	0.50	0.15	-0.69
Helps with cycle	-1.60	-0.88	1.75	2.44
Is "natural"	-0.75	-0.56	1.80	0.94
Puts object in body	1.15	2.31	-1.75	-0.38*
Puts drug in body	0.00	0.00	-0.25	-0.69
Morally acceptable	-1.05	1.50**	1.95	2.50
Have "on hand"	2.20	2.31	-1.30	-1.25
Prevents VD	-0.35	-1.31	2.95	2.94
Easy to hide	1.90	1.44	2.15	1.56
Interrupts sex	0.60	0.56	-1.90	-2.13
Reduces spontaneity	0.95	0.00	-1.55	-1.63
Reduces male pleasure	-0.25	-0.50	-2.35	-2.25
Reduces my pleasure	0.30	-0.19	-2.55	-2.19
Is messy	1.45	0.19	-2.70	-2.19
Male is responsible	-1.80	-2.00	-1.40	0.69**
Easy to get	0.25	1.63**	2.25	2.50
Must see MD	2.00	2.63	2.35	2.25
Costs a lot	-0.40	-0.13	-1.25	-1.75
Get supplies	1.50	1.88	1.50	1.63
N =	20	16	20	16

*$p < .05$

**$p < .01$

were more likely than nonintenders to believe the diaphram is:

- effective,
- easy to use,
- morally acceptable, and
- easy to get.

In terms of disadvantages, intenders were more likely to believe diaphragms put an object or barrier device in the body, but nonintenders rated such a consequence more negatively. Nonintenders were more likely to view the diaphragm as messy. Both groups agreed this method is not the male's responsibility; however, intenders positively rated using a male-oriented method, whereas nonintenders were negative toward such an outcome.

Table 53 presents the mean ratings of the diaphragm for the two groups on the normative beliefs and motivation to comply items. As with the IUD, intenders believed each referent person or group would approve of their using the diaphragm, whereas nonintenders held the opposite view. None of the mean differences on the motivation to comply ratings were one scale unit apart. Nonintenders were slightly motivated to comply with what they believed their parents wanted them to do, whereas intenders were not motivated to do so.

Differences between clinic intenders and nonintenders on beliefs, evaluations, and motivations to comply for the condom. Table 54 presents the mean ratings of condom intenders and nonintenders on the behavioral beliefs and outcome evaluations. Clinic respondents who intended to use condoms were more likely than nonintenders to believe

Table 53

Mean Ratings of the Diaphragm on Normative Beliefs and Motivations to Comply by Intention (Clinic Sample Only)

	Normative Beliefs		Motivation to Comply	
Referent Groups	Not Intend	Intend	Not Intend	Intend
Most doctors	-0.90	1.00**	6.70	6.38
My friends	-1.25	1.50**	2.15	2.31
My parents	-1.40	1.94**	4.30	3.38
People in my religion	-1.35	0.75**	2.30	2.38
My boyfriend	-1.65	1.19**	4.40	4.00
N =	20	16	20	16

**p <.01

Table 54

Mean Ratings of the Condom on Behavioral Beliefs and Outcome Evaluations by Intention (Clinic Sample Only)

	Behavioral Beliefs		Outcome Evaluations	
Outcomes	Not Intend	Intend	Not Intend	Intend
Effectiveness	0.10	1.21	2.90	2.68
Major side effects	-1.45	-1.84	-2.70	-2.37
Minor side effects	-1.80	-1.05	-0.95	-1.05
Birth defects	-2.30	-2.00	-2.90	-2.79
Easy to use	1.75	1.74	2.85	2.58
Lots of effort to use	-0.75	-0.37	-0.80	0.53**
Helps with cycle	-1.25	-0.79	2.50	1.89
Is "natural"	-0.20	0.47	1.25	1.84
Puts object in body	0.80	-0.37	-1.55	-0.68
Puts drug in body	-2.55	2.05	0.20	-1.11*
Morally acceptable	-0.65	1.63**	2.55	1.95
Have "on hand"	2.30	2.53	-1.85	-0.26**
Prevents VD	1.55	1.74	2.95	2.84
Easy to hide	1.60	0.79	2.30	1.37*
Interrupts sex	1.10	1.89	-2.00	-1.95
Reduces spontaneity	-0.55	-0.26	-1.60	-1.21
Reduces male pleasure	1.25	0.58	-2.50	-1.79
Reduces my pleasure	1.00	0.16	-2.60	-1.95
Is messy	-0.75	-0.58	-2.85	-2.05*
Male is responsible	2.15	1.74	-0.60	-0.37
Easy to get	2.60	2.42	2.40	2.37
Must see MD	-1.85	-1.74	2.45	2.05
Costs a lot	-0.65	0.32	-1.60	-1.42
Get supplies	1.55	1.00	1.60	1.32
N =	20	19	20	19

*p <.05

**p <.01

this method is (a) effective, and (b) morally acceptable. Intenders were more unlikely than nonintenders to believe condoms put an object or barrier device in the body. Both groups agreed that condoms do not put a drug/chemical in the body, but intenders rated such a consequence more negatively than nonintenders. Condoms were also viewed as being easy to hide, but nonintenders rated such a benefit more positively than intenders. Neither intenders nor nonintenders believed condoms are messy; however, the latter were more negative toward using a method which is messy than the former.

In terms of disadvantages, intenders were more likely than nonintenders to believe condoms cost a lot of money. Both groups believed condoms do not require a lot of effort or motivation to use, but intenders positively evaluated such a consequence, while nonintenders were negative toward this outcome. Condoms were perceived to be a method which must be "on hand" at the time of intercourse, but nonintenders more negatively evaluated this characteristic than did intenders.

The mean ratings of the condom on the normative belief and motivation to comply items are found in Table 55. Again, intenders believed that each reference person or group would approve of their using condoms, whereas nonintenders held the opposite view. Beliefs about the approval of boyfriends were not as strong among intenders as beliefs about the approval of other referent groups. None of the mean ratings on the motivation to comply items were one scale unit apart. There was a tendency for intenders to be somewhat motivated

Table 55

Mean Ratings of the Condom on Normative Beliefs and Motivations to Comply by Intention (Clinic Sample Only)

	Normative Beliefs		Motivation to Comply	
Referent Groups	Not Intend	Intend	Not Intend	Intend
Most doctors	-0.80	1.26**	6.75	6.37
My friends	-1.10	1.58**	2.50	2.16
My parents	-1.25	1.58**	3.85	4.16
People in my religion	-0.95	1.37**	2.30	2.95
My boyfriend	-1.40	0.11*	4.55	4.16
N =	20	19	20	19

*p <.05

**p <.01

to comply with what they believed their parents wanted them to do, while nonintenders were slightly unmotivated to do so.

Summary of Results on Beliefs, Evaluations, and Motivations to Comply for the Clinic Sample

In general, intenders of the pill, IUD, diaphragm, and condom believed they were more likely to attain favorable outcomes and avoid negative consequences by using specific contraceptives than did nonintenders. Beliefs about several attributes frequently distinguished intenders from nonintenders across two or more of these methods, as shown in Table 56. For example, judgments of whether a contraceptive was:

- effective,
- easy to use, and
- morally acceptable

distinguished intenders from nonintenders for several methods, in the expected direction; these results were also obtained in the college sample. Nonintenders of the pill and diaphragm intenders were more likely to believe these methods were easy to get.

In terms of disadvantages, results were mixed concerning which group was more likely to believe the pill, diaphragm, and condom put an object or barrier device in the body: pill and diaphragm intenders as well as condom nonintenders were more likely to believe this was true of each method, respectively. IUD and condom intenders were more likely than nonintenders to believe these methods cost a lot of money. Other results were idiosyncratic; the reader is referred to the

Table 56

Largest Effect Size Differences Between Intenders and Nonintenders on Behavioral Beliefs by Contraceptive Method (Clinic Sample Only)

	CONTRACEPTIVE METHODS			
Outcomes	Pill	IUD	Diaphragm	Condom
Effectiveness		**	**	*
Major side effects				
Minor side effects				
Birth defects		*		
Easy to use		X	X	
Lots of effort to use	X			
Helps with cycle	X			
Is "natural"	X			
Puts object in body	X		X	X
Puts drug in body				
Morally acceptable	*	**	**	**
Have "on hand"				
Prevents VD				
Easy to hide				
Interrupts sex				
Reduces spontaneity				
Reduces male pleasure		*		
Reduces my pleasure				
Is messy			X	
Male is responsible				
Easy to get	X		**	
Must see MD				
Costs a lot		X		X
Get supplies				

*p <.05; **p <.01

Note. Effect size differences of roughly one scale unit or better are highlighted in this table for up to six outcomes per method. An "X" indicates a nonsignificant difference between intenders and nonintenders which was approximately one scale unit.

previous subsections for a detailed discussion of these findings.

Table 57 highlights the largest effect size differences between clinic intenders versus nonintenders on the outcome evaluations across contraceptive methods. Most of the results presented in this table were found for a single birth control method. Three outcomes yielded differential evaluations across two or more methods. Pill intenders and condom nonintenders more negatively rated using a method which requires a lot of motivation or effort to use than did their respective counterparts. Pill intenders and diaphragm nonintenders more negatively evaluated putting an object or barrier device in the body; in contrast, IUD intenders positively rated this outcome. Lastly, pill intenders and condom nonintenders more negatively evaluated using a method which is messy.

In general, differential ratings for the pill, IUD, diaphragm, and condom across the set of behavioral beliefs and outcome evaluations were as often due to variations in response degree as due to opposing views held by intenders versus nonintenders. An examination of the pattern of statistically significant and nonsignificant findings indicated that differences in intentions were the result of variations in behavioral beliefs and, to a somewhat lesser extent, outcome evaluations. All in all, these findings are fairly consistent with those obtained for the college sample.

The results concerning the normative component of the Fishbein-Ajzen model were also consistent across the two samples. For the clinic sample, intentions to use the pill, IUD, diaphragm, and condom

Table 57

Largest Effect Size Differences Between Intenders and Nonintenders on Outcome Evaluations by Contraceptive Method (Clinic Sample Only)

	CONTRACEPTIVE METHODS			
Outcomes	Pill	IUD	Diaphragm	Condom
Effectiveness				
Major side effects				
Minor side effects		X		
Birth defects				
Easy to use				
Lots of effort to use	*			**
Helps with cycle				
Is "natural"				
Puts object in body	**	**	*	
Puts drug in body				*
Morally acceptable	*			
Have "on hand"				**
Prevents VD				
Easy to hide				*
Interrupts sex				
Reduces spontaneity				
Reduces male pleasure				
Reduces my pleasure				
Is messy	**			*
Male is responsible			**	
Easy to get				
Costs a lot	*			
Get supplies				

*p <.05; **p <.01

Note. Effect size differences of roughly one scale unit or better are highlighted in this table for up to six outcomes per method. An "X" indicates a nonsignificant difference between intenders and nonintenders which was approximately one scale unit.

were primarily under the influence of normative beliefs rather than motivations to comply. Differences in normative beliefs with respect to intentions to use the pill were usually the result of variations in response degree; intenders were more likely than nonintenders to believe others would approve of their using the pill. In contrast, such differences with respect to the IUD, diaphragm, and condom were due to opposing views; intenders believed others would approve of their using these methods, while nonintenders did not. Lastly, all clinic respondents were motivated to comply with what they believed doctors wanted them to do (which is not surprising given that they were in a clinic at the time of data collection), and were not motivated to comply with the perceived opinions of their friends or people in their religion. Motivation to comply ratings with respect to parents and boyfriends were mixed.

Analyses Utilizing an Alternative Approach to Predicting Intentions for the Clinic Sample

A predictive decision factor model, conceptually similar to social judgment theory, was examined in the present study. This set of analyses were performed to determine (a) whether a more parsimonious (requiring fewer measures) and content-specific set of predictor variables could be empirically-derived to predict intentions, and (b) whether this set of predictors could do as well as, or better than, the expectancy-value model components in predicting intentions. (The reader is referred to the INTRODUCTION for a description of the predictive decision factor model and social judgment theory.)

Responses obtained from the college sample were utilized to develop a set of predictor variables for the decision analysis through factor analytic procedures (see the An Alternative Approach to Predicting Intentions subsection). Three common factor scales were constructed for each contraceptive. The first scale for each method represented use advantages and social approval. The second factor was composed of items measuring immediate negative effects on having sexual intercourse. Lastly, the third scale measured medically-related disadvantages. Scores on the common factor indices derived through analyses on the college sample data were also computed for the clinic sample.

Regression analyses were performed on the clinic sample data predicting intentions to use each contraceptive from the three method-specific common factor scales. These analyses are presented in Table 58. The results obtained using the common factor scales were mixed in terms of similarity to those obtained using the direct Fishbein-Ajzen model components (i.e., AB and SN). The latter regression model accounted for more variance in intentions to use the pill, diaphragm, and rhythm methods than did the common factor scale regressions. Both models accounted for roughly the same amount of variance for the intention to use the IUD. The common factor scale model was more successful in predicting intentions to use the condom and withdrawal than was the direct Fishbein-Ajzen components model (compare the multiple R-square values in Table 39 versus Table 58). These results contrast with those obtained on the college sample. In this case, the direct Fishbein-Ajzen components model accounted for more variance

Table 58

Univariate and Multivariate Predictions of Intention to Use Each Contraceptive Utilizing the Common Factor Indices as Predictors (Clinic Sample Only)

	CONTRACEPTIVE METHODS											
	PILL		IUD		DIAPHRAGM		CONDOM		WITHDRAWAL		RHYTHM	
Predictor Variables[a]	r	B	r	B	r	B	r	B	r	B	r	B
Use Advantages/ Social Approval	.58	.60**	.78	.78**	.73	.71**	.66	.86**	.59	.59**	.57	.55**
Negative Effects on Sex	.14	.16	-.06	.01	-.10	.05	-.07	.40**	-.16	-.00	.07	.04
Medical Disadvantages	.01	.07	-.23	-.23*	.31	.22	.04	.02	.17	.01	.22	.15
R		.61**		.81**		.76**		.73**		.59**		.59**
R^2		.37		.66		.58		.54		.35		.35
df		3,36		3,36		3,36		3,36		3,36		3,36

*p <.05

**p <.01

[a]These indices are described in the text.

in intentions to use the pill, condom, withdrawal, and rhythm methods than did the common factor scale models; the opposite was true for the IUD and diaphragm. It is unclear why these differences were obtained across the two samples. Perhaps the factors derived on the basis of the college sample responses were somewhat nongeneralizable to the clinic sample; thus, different patterns of response were obtained.

For the clinic sample data, the regression analyses using the common factor scales were more successful in predicting intentions to use each contraceptive than the indirect Fishbein-Ajzen components model (i.e., ΣBe and ΣNMc). This pattern of results was also obtained with the college sample data for intentions to use the IUD, diaphragm, withdrawal, and rhythm methods. The common factor scales may have been generally more successful in predicting intentions for both samples than the indirect components model because the former: (a) may have been composed of only the most relevant beliefs, and (b) may have been more internally consistent than the latter.

As with the college sample results, the first common factor had the largest significant beta weight in each regression, as shown in Table 58. Thus, use advantages and social approval were strongly related to intentions to use each contraceptive. For the IUD, the stronger the intention to use this method, the less likely it was perceived to lead to medically-related disadvantages. A positive, but marginally significant relationship was found between intentions to use the diaphragm and medically-related disadvantages; the opposite

was found in the college sample. One other significant result was different from that obtained with the college sample: the stronger the intention to use the condom, the more likely clinic respondents were to attribute negative effects on having sexual intercourse to this method. In general, the patterns of association between intentions and the common factor indices for the clinic sample indicate that some suppression effects were obtained, particularly with respect to the condom (see Table 58; Cohen & Cohen, 1975). The similarity of the results obtained using the common factor scales between the college versus the clinic samples was mixed.

To parallel the analyses performed with the Fishbein-Ajzen model, t-tests were utilized to examine mean differences between intenders and nonintenders on the common factor scales for the pill, IUD, diaphragm, and condom. (Recall that such analyses were not performed on the withdrawal and rhythm methods due to the fact that only two respondents in each case intended to use these methods.) These results are reported in Table 59. For each contraceptive, only the first common factor scale yielded significant results. In the case of the pill, intenders were more likely than nonintenders to believe this method has use advantages and would meet with social approval. Clinic respondents who intended to use the IUD, diaphragm, or condom also believed these methods have use advantages and would meet with social approval, whereas the nonintenders believed the opposite was true. These results closely parallel those obtained with the college sample.

Table 59

Mean Ratings of Each Contraceptive on the
Common Factor Indices by Intention (Clinic Sample Only)

	PILL		IUD		DIAPHRAGM		CONDOM	
Common Factor Indices[a]	Not Intend	Intend	Not Intend	Intend	Not Intend	Intend	Not Intend	Intend
Use Advantages/ Social Approval	0.84	2.14**	-1.14	1.17**	-0.89	1.10**	-0.50	1.22**
Negative Effects on Sex	-2.95	-2.31	-1.01	-1.38	0.40	-0.03	0.70	0.59
Medical Disadvantages	0.87	1.04	1.13	0.65	0.13	0.60	-1.53	-1.51
N =	5	34	28	10	20	16	20	19

**p <.01

[a]These indices are described in the text.

Note. Respondents who were "neutral" (i.e., scored zero) on the intention index were excluded from these analyses.

In general, the analyses performed on the common factor scales produced fairly similar results between the college and clinic samples. Comparisons of the common factor scale regressions to results obtained from the indirect Fishbein-Ajzen components model within each sample were similar. Differences between the two samples emerged when the common factor scale analyses were compared to the direct components model regressions. Lastly, the mean differences on the common factor scales between intenders and nonintenders within each sample were similar.

Prediction of Relative Judgments or Choice Intention: Conceptual and Analytic Considerations

The previous subsection concluded the examination of absolute judgments of intention for both the college and clinic samples. The remainder of the RESULTS section presents findings which address the issue of relative judgment or choice intention.

In the INTRODUCTION, the issue of how people choose among multiple behavioral alternatives was addressed from the expectancy-value perspective and various decision theory approaches. Applications of expectancy-value theory to choice intention situations have been limited to paired-comparison tasks involving two alternatives, in which an additive-difference model served as the framework for analysis (Sperber et al., 1980). In the current study, utilizing such a model to examine preferences among pairs of six contraceptive methods would have required fifteen multiple regression analyses. Instead, a conceptual and analytic expansion of the expectancy-value approach

was examined. The judgment task required respondents to make implicit comparisons among all six contraceptives on every attribute. The task also permitted a more parsimonious examination of the data, using discriminant analysis procedures, than an additive-difference model would have allowed (see the INTRODUCTION for a detailed description of the expanded model).

Table 60 presents the response frequencies for the college and clinic samples on the choice intention measure. Almost one-half of the college sample chose the pill. The condom was preferred by one-fifth of these respondents. Rhythm was the third most popular choice (13.1%), followed by the diaphragm (8.0%), withdrawal (7.6%) and lastly, the IUD (1.2%). Four-fifths of the clinic sample preferred the pill. The remainder chose the IUD, diaphragm or condom. Given the small number of college respondents choosing the IUD, further analyses of this method was not performed. Similarly, analyses of the clinic sample data were not undertaken due to the lack of response variability.

The choice intention analyses were planned to parallel those employed to examine absolute judgments of intention. Discriminant analyses predicting choice among five methods (excluding the IUD) were performed, utilizing the appropriate direct and indirect Fishbein-Ajzen model components as predictors. Second, variables external to the expectancy-value model (e.g., demographics, sexual experience and previous use) were added to the discriminant function equation containing the direct components (i.e., AB and SN) to

Table 60

Relative Frequencies for the Choice Intention Index by Sample

Method Most Likely To Intend to Use in the Next Six Months	College Sample f	College Sample %	Clinic Sample f	Clinic Sample %
Pill	121	48.2	32	80.0
IUD	3	1.2	3	7.5
Diaphragm	20	8.0	3	7.5
Condom	55	21.9	2	5.0
Withdrawal	19	7.6	0	0.0
Rhythm	33	13.1	0	0.0
TOTAL	251[a]	100.0	40	100.0

[a]Twenty-two respondents were excluded, 14 because they intended to use methods other than the six under investigation and 8 due to missing data.

determine whether these additional variables improved predictability. Next, a series of ANOVAs were performed to examine differences among choosers of each contraceptive on ratings of behavioral and normative beliefs, outcome evaluations, and motivations to comply. Lastly, a similar set of analyses were undertaken with respect to the common factor indices described in the previous subsections as a test of the predictive decision factor model. To reduce the chance of alpha errors, only those results which reached the .01 level were considered statistically significant. These findings are briefly summarized in the text; the reader is referred to the accompanying tables for details of the results.

Discriminant Analyses Predicting Choice: An Examination of the Fishbein-Ajzen Model

The issue to be addressed in this subsection concerns which factors discriminate choice intentions; that is, which components of the expectancy-value model determine preferences among different contraceptive methods. For example, it might be expected that AB and SN for the pill would discriminate choice of this method from choice of the diaphragm, condom, withdrawal, and rhythm methods. Two simultaneous discriminant analyses, using the choice measure described above as the dependent variable were performed. One analysis employed the ten direct attitude toward the behavior and subjective norm components (i.e., AB and SN for the five contraceptives) as predictors, while the other used the ten appropriate indirect components (i.e., ΣBe and ΣNMc for the five contraceptives). The discriminant function equations for both analyses were highly significant ($p < .001$ in each case).

However, an examination of the F-to-Remove values, with all variables in each equation, revealed that some components did not uniquely contribute to prediction, as shown in Table 61.

For the direct components model, four of five AB indices (i.e., those for the pill, condom, withdrawal, and rhythm methods) were significant. None of the SN measures reached the .01 level; however, the index for the diaphragm was marginally significant ($p < .05$). In general, both direct components for each contraceptive were not needed to adequately discriminate choice intention. The attitude toward the behavior indices tended to predict choice, whereas the subjective norm measures did not.

The analysis of the indirect components model revealed that the ΣBe indices for the pill, diaphragm, and withdrawal uniquely contributed to prediction ($p < .01$ in each case). Marginal significance was obtained for the condom ΣBe measure ($p < .05$). The indirect normative components (i.e., ΣNMc) for the withdrawal and rhythm methods, and to a lesser extent for the pill, were also significant. The pattern of results for the indirect components model was not as clear as that obtained with the direct components model. For two methods, the pill and withdrawal, both indirect components were important predictors. Otherwise, only one component of each method-specific pair was needed to discriminate choice. Given the size of the F-to-Remove values, the indirect attitude toward the behavior indices tended to be "better" discriminating predictors of choice than the indirect subjective norm measures, except in the case of withdrawal and rhythm.

Table 61

Unique Contribution of Each Fishbein Model Component to the Discriminant Function Equations Predicting Choice Intention (College Sample Only)

Predictor Variables	F-to-Remove Values: Direct Components	Indirect Components
Attitude toward the Behavior		
Pill	14.23**	10.45**
Diaphragm	1.08	3.69**
Condom	5.15**	2.72*
Withdrawal	10.36**	3.99**
Rhythm	3.49**	2.17
Subjective Norm		
Pill	1.48	2.50*
Diaphragm	2.42*	1.61
Condom	0.28	1.57
Withdrawal	1.11	4.47**
Rhythm	0.62	4.84**

*p <.05; **p <.01

Note. Degrees of freedom = 4 and 211 for each F-value.

Psychometric concerns made it difficult to determine whether attitudinal versus normative factors were the more important predictors of choice intention. Multicollinearity among the pairs of predictor variables for each contraceptive was relatively high. For example, correlations between the corresponding pairs of AB and SN indices ranged from .43 for withdrawal to .64 for the condom. Likewise, correlations between the ΣBe and ΣNMc measures ranged from .35 for the rhythm method to .48 for the condom. (Correlations among other predictor variables in each analysis tended to be low with a few exceptions.) Multicollinearity reduces the degree to which one can reliably interpret the relative importance of the contribution of predictor variables to discrimination among groups. As with the multiple regression analyses reported earlier, it is concluded that both attitudinal and normative factors play a role in predicting choice; the former may be slightly more important than the latter for predicting choice among methods of contraception.

Discriminant functions for the direct and indirect component models. For both discriminant analyses, four significant discriminant functions were obtained (Wilks' lambda was significant at the .01 level for each function within each analysis). The canonical R-squared values for each function, using the direct components as predictors of choice, were: .48, .33, .17, and .14, respectively. For the indirect components model, these values were: .47, .29, .22, and .14, respectively.

The standardized discriminant function coefficients for each

analysis were examined for interpretability on the basis of the direction and size of the coefficient loadings. The direct model coefficients revealed the following pattern of results. As shown in Table 62, the first function primarily discriminated judgments of the pill (AB = .76 and SN = .23) from the remaining four methods (AB and SN coefficients ranged from .17 to -.22). The second function compared male-oriented methods; in this case, attitudes toward the condom (AB = -.45) were contrasted with attitudinal and normative assessment of the withdrawal method (AB = .71 and SN = .26). The third function primarily discriminated barrier methods: attitudinal and normative judgments of the diaphragm (AB = .40 and SN = .52) were compared to attitudes toward the condom (AB = -.59). Lastly, the fourth function discriminated three contraceptive methods: attitudes toward the condom and withdrawal (AB = .50 and .55, respectively) were compared to attitudinal judgments of the rhythm method (AB = -.72).

The disciminant function coefficients for the analysis of the indirect model revealed a different pattern of results, as shown in Table 63. The first function primarily discriminated the pill from male-oriented methods: attitudinal and normative judgments of the pill (ΣBe = .67 and ΣNMc = .27) were compared to attitudes toward using the condom and withdrawal (ΣBe = -.33 and -.29, respectively). The second function discriminated barrier methods from "natural" methods; in this case, normative judgments of the diaphragm and condom (ΣNMc = -.32 and -.33, respectively) were contrasted with

Table 62

Standardized Canonical Discriminant Function Coefficients
for the Fishbein Direct Model Components (College Sample Only)

Direct Model Components	Standardized Canonical Discriminant Function Coefficients			
	Function 1	Function 2	Function 3	Function 4
Pill AB	.76	.05	.04	-.02
Pill SN	.23	-.01	-.27	.07
Diaphragm AB	.09	-.10	.40	-.07
Diaphragm SN	-.14	-.16	.52	.23
Condom AB	-.22	-.45	-.59	.50
Condom SN	-.12	.01	-.05	-.12
Withdrawal AB	-.08	.71	.23	.55
Withdrawal SN	-.11	.26	-.10	.20
Rhythm AB	-.19	.18	.04	-.72
Rhythm SN	.17	-.03	-.15	-.24

Table 63

Standardized Canonical Discriminant Function Coefficients
for the Fishbein Indirect Model Component (College Sample Only)

Indirect Model Components	Standardized Canonical Discriminant Function Coefficients			
	Function 1	Function 2	Function 3	Function 4
Pill ΣBe	.67	.24	.16	-.29
Pill ΣNMc	.27	.01	.31	.23
Diaphragm ΣBe	.03	.01	-.54	.53
Diaphragm ΣNMc	-.10	-.32	-.09	.21
Condom ΣBe	-.33	-.08	.20	-.46
Condom ΣNMc	-.04	-.33	.10	-.31
Withdrawal ΣBe	-.29	.04	.68	.09
Withdrawal ΣNMc	-.04	.51	.31	.59
Rhythm ΣBe	.02	.30	-.39	.23
Rhythm ΣNMc	.05	.43	-.34	-.68

normative assessments of withdrawal and rhythm (ΣNMc = .51 and .43, respectively), as well as attitudes toward using rhythm (ΣBe = .30). The third function did not produce a clearly interpretable set of coefficients; in this case, the normative judgments of the pill and withdrawal (ΣNMc = .31, respectively), plus attitudes toward withdrawal (ΣBe = .68) were contrasted with attitudes toward using the diaphragm and rhythm (ΣBe = -.54 and -.39), plus normative judgments of rhythm (ΣNMc = -.34). The fourth function also did not produce a clearly interpretable set of coefficients. Attitudes toward the diaphragm (ΣBe = .53) and normative judgments of withdrawal (ΣNMc = .59) were contrasted with attitudinal and normative assessments of the condom (ΣBe = -.46 and ΣNMc = -.31) and normative judgments of the rhythm method (ΣNMc = -.68).

In general, the discriminant function coefficients for the direct components model produced a more clearly interpretable pattern of results than did those for the indirect model. In both cases, the first function contrasted the pill with other contraceptives. Judgments of the male-oriented methods (i.e., the condom and withdrawal) were often "grouped" for comparisons to other methods, or were contrasted against each other. Similar patterns of results were obtained for barrier methods (i.e., the diaphragm and condom) and "natural" forms of birth control (i.e., withdrawal and rhythm).

Classifying cases with known choice intentions. In order to test the adequacy of the discriminant functions described above, classification analyses were performed, utilizing the cases upon

which the discriminant functions were derived. In general, the classification process identifies the likely group membership of a case on the basis of that case's values on the discriminating variables. By classifying cases used to derive the discriminant functions and comparing predicted group membership to actual group membership, the success of the discriminant functions can be empirically determined by examining the proportion of correct classifications. As suggested in Nie et al. (1975), the classification functions were adjusted so that the prior probabilities for predicted group membership were proportional to the number of cases in each choice intention group. These prior probabilities were .49 for the pill, .22 for the condom, .14 for the rhythm method, .08 for withdrawal, and .07 for the diaphragm. Results, based on the discriminant functions in which the direct Fishbein-Ajzen model components served as predictors, can be found in Table 64. Overall, 72.4% of the cases were correctly classified by the model. An examination of the diagonal entries in this table (from the top left-hand corner to the lower right-hand corner) revealed that the discriminant functions were best able to classify pill choosers (94.6% correctly predicted) and were least successful in discriminating withdrawal choosers (44.4% correctly classified). Roughly half of the diaphragm, condom, and rhythm choosers were correctly classified. Most of the misclassifications for methods other than the pill were assigned to the pill category; this may have been primarily due to the prior probabilities criterion used in the classification analyses. Recall the pill group had the largest prior probability (.49) assigned to it and thus, all

Table 64

Group Classification Results Based on the Discriminant Functions Using the Direct Fishbein Model Components as Predictors of Choice Intention (College Sample Only)

Actual Group Membership	Number of Cases	Predicted Group Membership % Correct Classifications				
		Pill	Diaphragm	Condom	Withdrawal	Rhythm
Pill	111	94.6	0.0	1.8	0.9	2.7
Diaphragm	16	25.0	50.0	25.0	0.0	0.0
Condom	49	30.6	4.1	49.0	2.0	14.3
Withdrawal	18	38.9	0.0	11.1	44.4	5.6
Rhythm	31	32.3	3.2	0.0	6.5	58.1

Percent of "grouped" cases correctly classified: 72.44%

cases were more likely to be assigned to this category than any other.

Classification results, based on the discriminant functions in which the indirect Fishbein-Ajzen model components served as predictors, can be found in Table 65. Overall, 70.7% of the sample were correctly classified. Thus, the indirect components model was slightly less successful in predicting group membership than was the direct components model. As before, the diagonal entries of Table 65 indicated that the discriminant functions were most successful in classifying pill choosers (89.2%) and were least able to discriminate withdrawal choosers (38.9%). Choosers of the diaphragm, condom, and rhythm methods were correctly classified in roughly half of the cases. Most of the misclassifications for these three methods fell into the pill category; again, this may have been primarily due to the prior probability classification criterion utilized. For withdrawal, the misclassifications were more often assigned to the condom category. This finding is not too surprising, given that both condoms and withdrawal are male-oriented methods and thus, may be seen as having few discriminating qualities.

In general, the direct components model was more successful than the indirect components model in classifying choosers of the pill, withdrawal, and rhythm methods. The indirect components model was better able to classify condom choosers. Both models were equally predictive in terms of discriminating women who prefer the diaphragm. Overall, the direct attitude toward the behavior and subjective norm

Table 65

Group Classification Results Based on Discriminant Functions Using the Indirect Fishbein Model Components as Predictors of Choice Intention (College Sample Only)

Actual Group Membership	Number of Cases	Predicted Group Membership % Correct Classifications				
		Pill	Diaphragm	Condom	Withdrawal	Rhythm
Pill	111	89.2	0.0	6.3	1.8	2.7
Diaphragm	16	25.0	50.0	25.0	0.0	0.0
Condom	49	30.6	4.1	57.1	4.1	4.1
Withdrawal	18	16.7	0.0	27.8	38.9	16.7
Rhythm	31	25.8	0.0	12.9	6.5	54.8

Percent of "grouped" cases correctly classified: 70.67%

indices (i.e., AB and SN) were slightly better predictors of choice intentions than their indirect counterparts (i.e., ΣBe and ΣNMc), as expected. However, the difference in the percentage of all cases correctly classified by the direct versus indirect component models were less than 2%.

Choice Intention: An Examination of the Influence of Variables External to the Fishbein-Ajzen Model

Ajzen and Fishbein (1980) hypothesized that variables external to their model (e.g., demographics, previous experience with the attitude object) impact on intentions only indirectly by influencing other model components such as beliefs, outcome evaluations, and motivations to comply or the relative weights of AB and SN. As suggested in Fishbein (1979), external variables were not expected to significantly increase prediction beyond that which can be achieved with only the direct model components. To parallel the analyses performed on the absolute judgments of intention, external variables were individually added to the discriminant function equation predicting choice, in which the direct model components served as predictors. The same external variables used in the previously reported regression analyses were again examined (see Appendix D for a description of how each measure was coded); exceptions are described below.

Table 66 summarizes the findings of the discriminant analyses exploring the role of external variables in prediction. As suggested in Klecka (1980; pgs. 54-55), the change in Rao's V due to the addition of a variable was used to examine the statistical significance

Table 66

Change in Rao's V for Each External Variable Added to the Discriminant Function Equation Containing the Fishbein Direct Model Components as Predictors of Choice Intention (College Sample Only)

External Variables[a]	Change in Rao's V		
	Chi-square	df	p
Race	8.89	12	n.s.
Religion	6.02	8	n.s.
Strength of Religious Belief	18.89	4	.01
Religion by Strength of Belief Interaction[b]	10.78	8	n.s.
Current Year in School	10.75	4	.05
Current Age	34.86	4	.01
Estimated Socio-economic Status	7.41	4	n.s.
Current Living Situation	42.12	8	.01
Estimated Number of Times Will Have Sex in the Next 6 Mos.	8.08	4	n.s.
How Likely Sex Will be Unplanned in the Next 6 Mos.	2.67	4	n.s.
Sexual Experience and Previous Use of Pill, Condom, Withdrawal and Rhythm Methods	91.13	20	.01
Locus of Control: Chance	12.48	4	.05
Locus of Control: Personal Control	9.26	4	n.s.
Locus of Control: Medical Personnel	0.85	4	n.s.

[a]External variables are described in the text and Appendix D.

[b]The hypothesis tested was whether these interaction dummy variables would produce a significant change in Rao's V after both Fishbein components and the main effect variables for religion and strength of religious belief were in the equation predicting choice intention.

of the change in overall separation or discrimination among groups. This measure is tested with the chi-square statistic.

Four of fourteen external variables analyses yielded results significant at the .01 level. These included: (a) strength of religious belief, (b) current age, (c) current living situation, and (d) sexual experience and previous use of the pill, condom, withdrawal, and rhythm methods. A posteriori analyses were performed to determine which intention groups significantly differed using Scheffe's procedure. Because this procedure is a conservative test, the criterion alpha was set at .05 for these analyses. Chi-square tests were also utilized for follow-up purposes, where appropriate.

In terms of strength of religious beliefs, no two groups significantly differed. Rhythm choosers tended to hold the strongest religious beliefs, followed by choosers of the pill, condom, diaphragm, and withdrawal methods (means = 5.19, 4.73, 4.27, 4.20, and 3.88, respectively). Diaphragm choosers were significantly older than women who preferred the rhythm, pill, condom, or withdrawal methods (means = 20.67, 19.11, 19.00, 18.94, and 18.88, respectively). No other pairs of groups significantly differed in terms of age.

Analyses of respondents' current living situation revealed the following pattern of results. Roughly three-fourths of those who chose the pill, condom, withdrawl, and rhythm methods lived with relatives, while the remainder primarily lived with nonrelatives rather than alone. In contrast, approximately half of the diaphragm

choosers lived with relatives, one-fifth lived with nonrelatives and slightly more than one-fourth lived alone. These findings were significant at the .001 level, but must be viewed with caution because of the number of empty or low frequency cells in the chi-square analysis.

Five dummy variables were simultaneously added to the discriminant function equation to represent sexual experience and previous use of four methods. One dummy variable was coded to represent virgins versus nonvirgins, and four dummy variables were coded to represent ever use of the pill, condom, withdrawal, and rhythm methods. Ever use of the diaphragm was excluded due to the low frequency (n = 11) of this response. The change in Rao's V due to the addition of these five variables was significant ($p < .01$). An examination of the F-to-Remove values, after all of the direct Fishbein-Ajzen model components and experience variables were in the discriminant equation, revealed that only two of the experience factors uniquely contributed to prediction: (a) status as a virgin versus nonvirgin, and (b) previous use of the pill (both significant at the .01 level).

Follow-up analyses revealed these results. Roughly one-half (52.7%) of the virgins intended to use the pill, as did 81.8% of the ever users and only 10.0% of the never users. One-fifth (22.0%) of the virgins preferred the condom, in comparison to slightly over one-third (36.8%) of the ever users and 6.4% of the never users. Almost 40% of the condom ever users intended to use the pill in the next six months. Less than 5% of the virgins and never users of withdrawal

preferred this method, whereas almost one-fifth (19.1%) of the ever users chose withdrawal. Withdrawal ever users were more inclined to choose the pill (38.2%) or the condom (25.0%). Less than one-fifth (14.3%) of the virgins preferred the rhythm method in comparsion to one-fourth (27.9%) of the ever users and virtually none (2.8%) of the never users. As with ever users of withdrawal, women who had ever used the rhythm method frequently preferred the pill (32.6%) or the condom (25.6%). Lastly, a roughly equal number of virgins and nonvirgins choose the diaphragm.

Past use of the pill was more frequently related to choice of the pill, than was past use of any other method with choice of those methods. Thus, pill experience produced more "product loyalty" than did experience with other forms of birth control. In addition, roughly one-third of the condom, withdrawal, and rhythm ever users also preferred the pill; one-fourth of withdrawal and rhythm users chose the condom. Perhaps experience with the pill reinforced positive perceptions and/or counteracted negative attitudes toward using this method. In contrast, experience with the condom, withdrawal, and rhythm methods may have validated negative rather than positive attitudes, leading to some dissatisfaction and a change in contraception preference for some users.

When interpreting the results presented above, the reader must remember that nonvirgins were coded as ever users of <u>every</u> method with which they had had experience. Thus, there was some overlap across use categories. In addition, current and past users were

collapsed into one category for each contraceptive. To examine the relationship between current use and choice, a simple frequency was obtained for nonvirgins. In this analysis, contraceptive loyalty was evident across all methods, except withdrawal. That is, the majority of pill (92.5%), diaphragm (77.8%), condom (80.0%), and rhythm (85.7%) current users preferred to continue using their current methods; in contrast, only 54.5% of the withdrawal current users preferred this method.

Two other external variables, current year in school and "chance" locus of control beliefs, marginally improved discrimination among the choice intention groups beyond that which could be attained by the direct Fishbein model components alone ($p < .05$ in each case). Because these findings did not reach the .01 level, they should be considered suggestive rather than statistically significant. In terms of current year in school, no two groups significantly differed at the .05 level using Scheffe's procedure. There was a tendency for diaphragm choosers to be upper-classmen, followed by pill, rhythm, condom, and withdrawal choosers (means = 1.87, 1.47, 1.41, 1.35, and 1.35, respectively). This result may be more a reflection of age than education. The rank ordering of the intention groups according to education level was almost identical to a similar rank ordering across groups in terms of average age.

Lastly, beliefs in the influence of chance on pregnancy outcomes differed across the choice intention groups. Withdrawal choosers held the strongest beliefs that chance or luck play a role

in getting pregnant, followed by rhythm, condom, diaphragm, and pill choosers (means = 9.47, 8.20, 7.77, 6.73, and 6.51, respectively). Only withdrawal and pill choosers signficantly differed from each other, according to Scheffe's procedure ($p < .05$). Interestingly, the average strength of belief in the influence of chance, across the choice intention groups, was inversely related to the rank-ordering of these five contraceptives in terms of theoretical effectiveness (Planned Parenthood Federation of America, Note 2). Choosers of less effective methods are apparently aware of the relative risks they are taking.

In general, most external variables did not significantly contribute to the discrimination of the choice intention groups, beyond that which could be achieved by using only the direct Fishbein-Ajzen model components as predictors. Thus, the Ajzen and Fishbein (1980) hypothesis regarding the irrelevance of external variables in prediction was partially supported. As previously noted, Fishbein (1979) would argue that external variables which do increment prediction probably have systematic effects on intervening factors such as behavioral or normative beliefs, outcome evaluations, or motivations to comply. Thus, one could explain why, for example, age affects choice by examining its relationship to these intervening variables. Because of the number of analyses required just to test the basic model, analyses examining the relationships between selected external variables and indirect components of the model were not performed.

Why Choice Intentions Differ: Overview of Analyses

Ajzen and Fishbein (1980) indicate that when attitudinal and normative factors predict intentions, one must examine the salient behavioral and normative beliefs, outcome evaluations, and motivations to comply to gain an understanding of systematic differences in intentions. Thus, a series of one-way analyses of variance were performed, using the choice measure as the independent variable, to address this issue. Ratings of each contraceptive across the set of individual indirect components served as the dependent measures in these analyses. Given the number of analyses performed, only those findings which reached the .01 level for the overall F-value were considered statistical significant.

A posteriori tests were also undertaken to determine which choice intention groups significantly differed, using the Scheffe procedure. Because this test is conservative, the criterion alpha was set at .05 for these follow-up analyses. Significant differences between pairs of groups are labeled with lower-case letters in the accompanying tables; means identified by different letters indicate a statistical significant difference at the .05 level or better. For example, as shown in Table 67 (see below), rhythm choosers (labeled "b") significantly differed from women who preferred the pill and diaphragm (both labeled "a") on evaluations concerning ease of use; no other pairs of groups were significantly different on ratings of this outcome, thus they were not labeled. General trends in the data are briefly summarized in the text. The reader is referred to the accompanying tables for details of the a posteriori findings.

Choice intentions: Ratings of outcome evaluations and motivations to comply. Respondents evaluated 24 outcomes associated with using various methods of birth control, on "good versus bad" semantic-differential scales scored from +3 to -3. The expectancy-value model assumes that evaluations of an outcome are the same, regardless of how they are achieved (Sperber et al., 1980). For example, using a contraceptive which would cause major health hazards is generally viewed as a negative outcome, irrespective of whether this consequence is attained by using one alternative form of birth control versus another. Thus, outcome evaluations were not method-specific ratings, but represented generalized assessments of what are positive benefits and negative consequences associated with using some forms of contraception.

Table 67 presents the mean outcome evaluation ratings, across the choice intention groups. In general, most significant differences were a reflection of variations in response degree rather than opposing views. Eleven of twenty-four analyses were significant at the .01 level; three reached the .05 level. Due to the number of analyses performed, the latter three findings were considered suggestive rather than statistically significant and thus, as not discussed.

Outcomes which were, for the most part, viewed as advantageous (i.e., were positively evaluated) revealed the following pattern of significant results. Women who preferred the rhythm method gave the least positive evaluations of effectiveness and ease of use; they also most positively rated "naturalness." Condom choosers were the

Table 67

Mean Ratings of Outcome Evaluations by Choice Intention Groups (College Sample Only)

Outcomes	CHOICE INTENTION GROUPS				
	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness**	2.71[a]	3.00[a]	2.78[a]	2.83[a]	1.94[b]
Major side effects	-2.50	-2.67	-2.76	-2.83	-2.74
Minor side effects**	-0.99[a]	-1.69	-1.67[b]	-1.72	-1.83[b]
Birth defects	-2.78	-2.94	-2.80	-2.83	-2.87
Easy to use**	2.57[a]	2.75[a]	2.51	2.50	1.87[b]
Lots of effort to use	-1.33	-0.44	-1.39	-0.89	-1.29
Helps with cycle*	1.75	1.13	1.16	1.22	0.90
Is "natural"**	1.12[a]	2.06	1.51	2.22	2.26[b]
Puts device in body**	-1.32[a]	0.69[b]	-1.02[a]	-1.28[a]	-1.77[a]
Puts drug in body**	-0.15[a]	-1.06	-1.76[b]	-1.67[b]	-1.81[b]
Morally acceptable	2.17	2.44	1.84	2.22	2.26
Have "on hand"**	-1.00[a]	0.38[b]	-0.16[b]	-1.00	-0.58
Prevents VD	2.45	2.56	2.67	2.39	2.26
Easy to hide	1.77	1.63	1.84	2.06	1.13
Interrupts sex**	-2.23[a]	-1.13[b]	-1.59[b]	-1.61	-1.84
Reduces spontaneity*	-1.72	-1.13	-1.55	-1.50	-1.10
Reduces male pleasure	-2.22	-1.94	-1.96	-2.17	-1.94
Reduces my pleasure	-2.13	-1.56	-1.61	-1.78	-1.77
Is messy	-2.23	-1.63	-1.94	-1.83	-1.97
Man is responsible**	0.05[a]	0.88	0.96[b]	0.33	-0.03
Easy to get	1.91	2.19	1.94	2.17	1.42
Must see MD**	1.33[a]	1.00	-0.24[b]	0.17	0.74
Costs a lot**	-1.05	-1.63	-1.59[a]	-1.39	-0.58[b]
Get supplies*	0.68	0.25	0.31	-0.17	-0.03
N =	111	16	49	18	31

*p <.05; **p <.01

[a,b]A posteriori results are indicated by these subscripts; See the text for an explanation.

most positive toward using a method which is primarily the male's responsibility. Pill choosers were the most positive about seeing a physician to get a method of birth control; in contrast, those who preferred the condom viewed such a consequence negatively.

Six outcomes, generally viewed as being disadvantageous (i.e., were negatively evaluated), also revealed significant differences across groups. Respondents with a preference for the rhythm method most negatively evaluated using a contraceptive which causes minor side effects. Diaphragm choosers positively evaluated: (a) putting an object or barrier device in the body, and (b) using a method which must be "on hand" at the time of intercourse, while choosers of all other methods viewed these consequences negatively. Pill choosers were: (a) the least unfavorable toward putting a drug or chemical in the body, and (b) the most unfavorable toward using a method which interrupts on-going sexual activity. Lastly, women who preferred the diaphragm or condom most negatively evaluated monetary cost.

The Fishbein-Ajzen model assumes that motivations to comply with the perceived opinions of salient referent groups are a generalized desire, within a particular domain of behavior. Thus, in this study, motivation to comply ratings, like outcome evaluations, were not method-specific judgments. Respondents were asked to indicate how likely they were to comply with what they believed significant others wanted them to do in terms of using birth control. (Recall that the motivation to comply scales were scored from 1 to 7, representing extremely unlikely to extremely likely.)

Table 68 presents the mean ratings for the motivation to comply statements, across the choice intention groups. Only one result was significant at the .01 level: pill choosers were the most motivated to comply with what they believed doctors wanted them to do. There was a tendency for rhythm choosers to be favorably motivated with respect to their beliefs about what people in their religion wanted them to do; in contrast, women who preferred other methods were not similarly motivated. Finally, all groups on the average (a) wanted to comply with their boyfriends' wishes, (b) were neutral with respect to their parents, and (c) did not want to comply with what they believed their friends wanted them to do.

Choice intentions: Ratings of the pill on behavioral and normative beliefs. As previously noted, outcome evaluations and motivations to comply represent the generalized "valence" quality for behavioral and normative beliefs, respectively. Within the Fishbein-Ajzen model framework, behavioral and normative beliefs, unlike outcome evaluations and motivations to comply, are assumed to be dependent upon the various courses of action under consideration. Preferences for alternative forms of birth control were expected to be related to systematic differences in the behavioral and normative beliefs associated with each contraceptive. In other words, it was hypothesized that differences in method-specific beliefs would determine preferences for one contraceptive over another. (Again, recall that beliefs were scored from -3 to +3, representing extremely unlikely to extremely likely.)

Table 68

Mean Ratings of Motivations to Comply by
Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Referent Groups	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Most doctors**	6.13[a]	5.69	5.86	5.50	5.23[b]
My friends	3.30	3.31	3.39	3.56	3.06
My parents	4.12	3.38	4.18	4.00	4.55
People in my religion*	2.83[a]	2.50	2.96	2.94	4.00[b]
My boyfriend	5.03	4.88	5.06	5.44	5.32
N =	111	16	49	18	31

*$p < .05$

**$p < .01$

[a,b]A posteriori results are indicated by these subscripts; See the text for an explanation.

Mean ratings of the pill on the behavioral belief statements, across the choice intention groups, are presented in Table 69. Nine belief items produced differences among the groups at the .01 level; three results reached the .05 level. The majority of the significant findings reflected differences in response degree rather than opposing views held by some groups.

In terms of advantages, women who preferred the pill were the most likely to believe this method is:

- effective,
- easy to use,
- morally acceptable,
- easy to hide, and
- easy to get.

Pill choosers were also the most unlikely to believe this method:

- would require a lot of effort or motivation to use,
- would reduce their own sexual pleasure, and
- is messy.

Only one result revealed a significant difference across groups in terms of a disadvantage. Women who preferred the pill were the least likely to believe it causes birth defects. In general, pill choosers in comparison to those preferring other methods were (a) more likely to believe the pill is associated with positive outcomes, and (b) less likely to believe this method leads to negative consequences.

Table 70 presents the mean normative belief ratings of the pill for each choice intention group. Pill choosers held the most favorable

Table 69

Mean Ratings of the Pill on Behavioral Beliefs by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Outcomes	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness **	2.59[a]	2.13	2.18	1.94	1.90[b]
Major side effects*	1.30	2.25	.2.00	1.67	1.35
Minor side effects	1.41	2.50	1.67	1.89	1.71
Birth defects**	0.69	1.94	1.57	0.78	1.52
Easy to use**	2.58[a]	0.81[b]	1.92	1.78	1.29[b]
Lots of effort to use**	-1.51[a]	0.68[b]	-0.57	0.67[b]	-0.45
Helps with cycle	1.33	1.25	0.92	0.89	0.97
Is "natural"*	-1.04	-2.50	-1.67	-1.56	-1.65
Puts device in body	-1.86	-1.94	-1.63	-1.28	-1.29
Puts drug in body	2.81	2.88	2.53	2.44	2.45
Morally acceptable**	1.72[a]	-0.94[b]	-0.20[b]	0.39	-0.71[b]
Have "on hand"	-0.98	-0.94	-1.14	-0.94	-0.29
Prevents VD	-1.91	-1.63	-2.14	-1.44	-1.42
Easy to hide**	2.04	0.81	1.24	1.78	1.39
Interrupts sex	-2.56	-2.63	-2.71	-2.50	-2.23
Reduces spontaneity	-2.05	-2.13	-1.69	-2.33	-1.42
Reduces male pleasure	-2.68	-2.56	-2.67	-2.56	-2.32
Reduces my pleasure**	-2.44[a]	-1.38	-2.16	-1.83	-1.26[b]
Is messy**	-2.43[a]	-2.38	-2.41	-2.17	-1.61[b]
Man is responsible	-2.56	-2.56	-2.55	-2.06	-2.16
Easy to get**	1.69[a]	0.69	0.31[b]	0.56	0.29[b]
Must see MD	2.69	2.06	2.45	2.67	2.39
Costs a lot	1.12	1.56	1.35	1.06	1.16
Get supplies*	2.51	2.88	2.59	2.56	1.81
N =	111	16	49	18	31

*p <.05; **p <.01

[a],[b]A posteriori results are indicated by these subscripts; see the text for an explanation.

Table 70

Mean Ratings of the Pill on Normative Beliefs
by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Referent Groups	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Most doctors**	2.42^{a}	1.06^{b}	1.39^{b}	2.28	1.23^{b}
My friends**	2.55^{a}	0.94^{b}	1.10^{b}	1.50	0.71^{b}
My parents**	1.45^{a}	-0.69^{b}	0.10^{b}	0.17	-0.13b
People in my religion	-0.67	-1.31	-1.53	-1.44	-1.48
My boyfriend**	2.50^{a}	0.81^{b}	0.88^{b}	1.78	0.35^{b}
N =	111	16	49	18	31

**$p < .01$

^{a,b}A posteriori results are indicated by these subscripts; see the text for an explanation.

normative beliefs. Women who preferred this method were the most likely to believe that doctors, their friends, parents, and boyfriends would approve of their using the pill. Again, most of these significant differences were the result of variations in response degree. These results indicate that pill choosers were more likely to believe significant others approve of using the pill than women who preferred other methods.

Choice intentions: Ratings of the diaphragm on behavioral and normative beliefs. Table 71 presents the mean behavioral belief ratings of the diaphragm, across the choice intention groups. Only three beliefs yielded significant differences at the .01 level; five reached the .05 level. The lack of statistically significant findings may be due to several factors: (a) the sample size for diaphragm choosers was small and thus, may not be representative of such women, and/or (b) preferences for the diaphragm may be largely under the influence of normative rather than behavioral beliefs. The latter hypothesis is partially supported by one of the discriminant analyses reported earlier. Recall that the direct AB component for the diaphragm did not uniquely contribute to prediction, whereas the corresponding SN component was marginally significant. This finding, however, was contradicted by the discriminant analysis of the indirect components (i.e., ΣBe and ΣNMc; see Table 61).

Because few differences were obtained, and due to the small sample size for diaphragm choosers, all statistically significant results were considered suggestive. In terms of advantages, women

Table 71

Mean Ratings of the Diaphragm on Behavioral Beliefs by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Outcomes	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness*	1.08	2.13	1.37	0.83	1.19
Major side effects	-0.16	-1.50	-0.35	-0.28	0.00
Minor side effects*	0.20	-1.06[a]	0.53[b]	-0.28	0.06
Birth defects	-0.79	-1.25	-0.61	-0.28	-0.13
Easy to use	-0.10	1.25	0.06	-0.39	0.16
Lots of effort to use	1.05	0.69	1.35	0.83	1.03
Helps with cycle	-1.91	-1.44	-1.61	-1.72	-1.23
Is "natural"**	-1.73[a]	-0.19[b]	-1.53	-1.44	-1.71
Puts device in body*	2.71[a]	2.81	2.59	2.50	1.94[b]
Puts drug in body*	-1.26	0.19	-0.96	-1.89	-0.71
Morally acceptable**	-0.05[a]	2.38[b]	0.20[a]	-0.28[a]	-0.55[a]
Have "on hand"	1.87	2.38	1.65	1.11	1.35
Prevents VD	-0.97	-0.88	-1.35	-0.72	-0.68
Easy to hide	0.99	1.31	0.37	1.33	0.39
Interrups sex	-0.03	-0.06	-0.82	-1.00	-0.26
Reduces spontaneity	0.19	0.50	-0.31	-0.33	-0.48
Reduces male pleasure	-0.20	-0.38	-0.45	-0.61	-0.48
Reduces my pleasure	0.41	0.50	0.06	0.11	0.61
Is messy	0.87	1.06	0.92	0.33	0.29
Man is responsible	-2.49	-2.50	-2.47	-2.00	-2.32
Easy to get**	0.02	0.94[a]	-0.71[b]	-0.44	-0.61
Must see MD*	2.32	2.63	2.29	0.50	1.74
Costs a lot	1.14	0.94	1.18	1.00	1.06
Get supplies	1.86	2.25	1.73	1.78	0.97
N =	111	16	49	18	31

*p <.05; **p <.01

[a,b]A posteriori results are indicated by these subscripts; see the text for an explanation.

who preferred the diaphragm were the most likely to believe this method:

- is effective,
- is morally acceptable,
- is easy to get,
- requires one to see a physician to get it, and
- puts an object or barrier device in the body.

Diaphragm choosers were also the most unlikely to believe this method causes minor side effects.

In terms of disadvantages, women who chose the diaphragm were the least unlikely to believe it is "natural." They were also the most likely to associate diaphragms with putting a drug or chemical in the body. Overall, diaphragm choosers were (a) more likely to attribute positive outcomes to, and (b) less likely to associate negative consequences with the diaphragm than were women who preferred other contraceptives.

Mean ratings of the diaphragm on normative beliefs, across the choice intention groups, are shown in Table 72. Respondents who preferred the diaphragm were the most likely to believe doctors, their friends, parents, and boyfriends would approve of their using this method. In all cases but one (i.e., with respect to ratings concerning doctors), significant differences reflected opposing views held by diaphragm choosers in comparison to those who preferred other methods.

Choice intentions: Ratings of the condom on behavioral and

Table 72

Mean Ratings of the Diaphragm on Normative Beliefs
by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Referent Groups	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Most doctors**	0.32^{a}	2.38^{b}	0.92	1.11	0.61^{a}
My friends**	-0.58^{a}	1.81^{b}	-0.27^{a}	-0.39^{a}	-0.97^{a}
My parents*	-0.68	1.00	-0.24	-0.56	-0.97
People in my religion	-1.36	-0.06	-1.45	-1.28	-1.32
My boyfriend**	-0.95^{a}	1.75^{b}	-0.29^{a}	-0.72^{a}	-0.81^{a}
N =	111	16	49	18	31

*$\underline{p} < .05$

**$\underline{p} < .01$

^{a,b}A posteriori results are indicated by these subscripts; see the text for an explanation.

normative beliefs. Mean ratings of the condom on behavioral beliefs, across the choice intention groups, can be found in Table 73. Seven of twenty-four findings were significant at the .01 level; one reached the .05 level. All but one of these results were due to variations in response degree rather than opposing views held by different groups.

Concerning perceived benefits, women who preferred the condom were the most likely to believe this method is:

- effective,
- easy to use, and
- morally acceptable.

They were also the most unlikely to believe condoms:

- cause major side effects,
- require a lot of effort or motivation to use, and
- are messy.

Only one significant finding at the .01 level reflected a disadvantage of the condom: choosers of this method and the pill were the most unlikely to believe condoms help with hormonal or menstrual cycle problems. As expected, women who preferred the condom were (a) more likely to believe this method is associated with certain advantages and (b) less likely to believe condoms lead to negative outcomes than choosers of other contraceptives.

Table 74 presents the mean ratings of the condom on the normative belief statements. It was found that women who preferred the condom were the most likely to believe that doctors, their friends,

Table 73

Mean Ratings of the Condom on Behavioral Beliefs by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Outcomes	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness**	0.50[a]	0.50	1.63[b]	0.78	0.94
Major side effects**	-1.76	-2.00	-2.41[a]	-2.00	-1.32[b]
Minor side effects	-1.73	-1.19	-1.96	-1.22	-1.35
Birth defects	-2.34	-2.13	-2.63	-2.50	-1.87
Easy to use**	0.96[a]	1.19	2.43[b]	1.44	1.42
Lost of effort to use**	-0.23[a]	-0.25	-1.49[b]	-0.67	-0.61
Helps with cycle**	-2.41[a]	-1.94	-2.08	-1.61	-1.32[b]
Is "natural"*	-0.96	-0.69	0.06	-0.39	-0.35
Puts device in body	0.32	0.38	0.14	0.33	-0.32
Puts drug in body	-2.42	-2.00	-2.39	-2.22	-2.29
Morally acceptable**	0.88[a]	1.81	1.90[b]	1.61	0.48[a]
Have "on hand"	2.17	2.38	2.22	1.56	1.84
Prevents VD	1.43	1.69	1.82	1.00	0.71
Easy to hide	1.35	0.63	1.18	1.39	0.48
Interrupts sex	0.89	1.44	0.96	0.72	0.84
Reduces spontaneity	0.11	0.69	-0.63	0.44	-0.03
Reduces male pleasure	1.59	1.63	1.24	1.39	1.74
Reduces my pleasure	1.12	0.88	0.37	1.28	0.71
Is messy**	0.45	0.19	-0.41[a]	1.44[b]	0.35
Man is responsible	2.64	2.75	2.69	2.50	2.52
Easy to get	1.80	1.56	2.27	2.00	1.48
Must see MD	-2.41	-2.63	-2.47	-2.00	-2.13
Costs a lot	-0.50	-0.06	-0.12	-0.44	-0.52
Get supplies	2.14	2.81	2.39	1.89	2.03
N =	111	16	49	18	31

*p <.05; **p <.01

[a,b]A posteriori results are indicated by these subscripts; see the text for an explanation.

Table 74

Mean Ratings of the Condom on Normative Beliefs
by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Referent Groups	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Most doctors**	0.21^{a}	0.31	1.67^{b}	0.83	0.48
My friends**	0.00^{a}	0.63	2.14^{b}	1.22	0.77^{a}
My parents**	-0.31^{a}	0.19	1.08^{b}	0.39	-0.29
People in my religion	-0.61	0.25	-0.84	-1.17	-0.32
My boyfriend**	-0.51^{a}	-0.44^{a}	1.61^{b}	-0.06	0.06^{a}
N =	111	16	49	18	31

**$p < .01$

^{a,b}A posteriori results are indicated by these subscripts; see the text for an explanation.

parents, and boyfriends would approve of their using this method. These differences were due, in some cases, to variations in response degree, while in other instances, findings reflected opposing views. In general, condom choosers were more likely than those preferring other methods to believe significant others would approve of using the condom.

Choice intentions: Ratings of withdrawal on behavioral and normative beliefs. Mean ratings of withdrawal on behavioral beliefs, across the choice intention groups, are presented in Table 75. Five findings were significant at the .01 level; three reached the .05 level. Significant differences were as often a result of response degree variations as due to opposing views held by some groups.

Interestingly, women who preferred withdrawal were neutral on ratings of this method in terms of effectiveness, whereas choosers of other methods viewed it to be ineffective. Obviously, there must be other reasons why withdrawal choosers prefer this method. Other perceived advantages may offset withdrawal's acknowledged ineffectiveness.

In terms of advantages, withdrawal choosers were the most likely to believe this method:

- is easy to use,
- does not require a lot of motivation or effort to use, and
- is morally acceptable.

Table 75

Mean Ratings of Withdrawal on Behavioral Beliefs
by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Outcomes	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness**	-1.72[a]	-1.50	-1.31	0.00[b]	-0.29[b]
Major side effects	-1.82	-1.88	-2.47	-2.56	-2.16
Minor side effects	-1.72	-1.63	-1.82	-2.00	-1.71
Birth defects	-2.25	-2.38	-2.45	-2.78	-2.03
Easy to use**	-0.89[a]	-1.38[a]	-0.12	1.00[b]	0.19
Lots of effort to use**	1.23[a]	1.19	0.12[b]	-0.61[b]	0.87
Helps with cycle	-2.12	-1.69	-2.14	-1.50	-1.42
Is "natural"	0.84	0.06	1.27	1.78	0.77
Puts device in body	-2.32	-1.94	-2.41	-2.33	-2.26
Puts drug in body	-2.50	-2.56	-2.61	-2.50	-2.23
Morally acceptable**	0.43[a]	-0.75[a]	0.86	2.44[b]	0.87
Have "on hand"	-1.07	-0.88	-1.22	-1.61	-0.65
Prevents VD	-2.16	-2.19	-2.10	-1.61	-1.39
Easy to hide	2.07	1.88	2.35	2.17	1.65
Interrupts sex	2.13	2.06	1.96	1.78	1.87
Reduces spontaneity*	-0.61	-1.94	-1.06	-1.33	-0.06
Reduces male pleasure*	1.80	1.63	2.14[a]	0.56[b]	1.77
Reduces my pleasure**	1.84[a]	1.50	1.61	0.28[b]	1.13
Is messy	0.54	0.06	0.84	0.61	1.19
Man is responsible	1.92	1.69	2.22	2.83	1.97
Easy to get*	0.85	0.13	0.92	1.94	1.55
Must see MD	-2.21	-2.44	-2.35	-2.06	-2.26
Costs a lot	-2.25	-2.50	-2.67	-2.33	-2.10
Get supplies	-2.49	-2.44	-2.67	-2.44	-2.19
N =	111	16	49	18	31

*p <.05; **p <.01

[a,b]A posteriori results are indicated by these subscripts; see the text for an explanation.

One disadvantage produced a significant finding at the .01 level: women who chose withdrawal were the least likely to believe it would reduce their own sexual pleasure. Consistent with previously reported results, withdrawal choosers in comparison to women who preferred other methods were (a) more likely to believe withdrawal is associated with certain positive outcomes, and (b) less likely to believe this method has some disadvantages.

Table 76 presents the mean ratings of withdrawal on normative beliefs. A different pattern of results emerged for ratings of this method than has been reported thus far. Withdrawal choosers were the least unlikely to believe doctors and their parents would approve of their using this method. In addition, they were likely to believe their boyfriends, and to a lesser extent their friends, would approve, whereas women who preferred other methods held the opposite view. Withdrawal, condom, and rhythm choosers felt people in their religion would approve of their using coitus interruptus, while diaphragm and pill choosers did not.

Choice intentions: Ratings of rhythm on behavioral and normative beliefs. Mean ratings of the rhythm method on behavioral beliefs, across the choice intention groups, are found in Table 77. Seven of twenty-four ratings were significantly different at the .01 level. These differences were due to both variations in response degree and opposing views held by some groups.

Concerning positive beliefs, women who preferred rhythm were

Table 76

Mean Ratings of Withdrawal on Normative Beliefs
by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Referent Groups	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Most doctors**	-2.07^{a}	-2.63^{a}	-1.78	-0.78^{b}	-1.00^{b}
My friends**	-1.90^{a}	-2.44^{a}	-1.29	0.11^{b}	-0.35^{b}
My parents**	-1.89^{a}	-1.88	-1.67^{a}	-0.11^{b}	-0.94
People in my religion**	-0.59^{a}	-0.44	0.29	0.56	0.84^{b}
My boyfriend**	-1.83^{a}	-2.44^{a}	-1.04^{a}	2.50^{b}	-0.42^{a}
N =	111	16	49	18	31

**$\underline{p}$ <.01

^{a,b}A posteriori results are indicated by these subscripts; see the text for an explanation.

Note. One a posteriori result is not indicated above due to lack space; rhythm choosers also differed from choosers of the pill and diaphragm on ratings of boyfriends' approval ($\underline{p}$ <.01).

Table 77

Mean Ratings of Rhythm on Behavioral Beliefs
by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Outcomes	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness**	-1.05[a]	-1.44[a]	-1.00[a]	-0.50	0.97[b]
Major side effects	-2.02	-2.38	-2.51	-2.44	-2.42
Minor side effects	-1.85	-2.50	-2.27	-1.83	-2.06
Birth defects	-2.32	-2.63	-2.61	-2.72	-2.45
Easy to use**	-0.74[a]	-0.56[a]	-0.24[a]	-0.28	1.39[b]
Lots of effort to use**	1.12[a]	0.00	0.18	0.83	-0.81[b]
Helps with cycle**	-2.04	-2.00	-1.82	-1.11	-1.03
Is "natural"	2.22	2.13	2.14	1.78	2.68
Puts device in body	-2.51	-2.56	-2.61	-2.56	-2.35
Puts drug in body	-2.67	-2.38	-2.67	-2.39	-2.39
Morally acceptable**	1.50[a]	1.69	1.90	2.39	2.74[b]
Have "on hand"	-1.25	-0.19	-1.39	-1.56	-0.45
Prevents VD**	-2.20[a]	-2.75[a]	-2.33[a]	-1.39	-1.16[b]
Easy to hide	2.36	2.25	2.20	2.56	2.39
Interrupts sex	-1.28	-1.88	-1.65	-2.11	-1.52
Reduces spontaneity	1.32	0.38	1.98	1.06	1.26
Reduces male pleasure	-0.77	-1.31	-0.90	-0.61	-1.42
Reduces my pleasure	-0.21	-0.56	-0.67	-1.11	-1.42
Is messy	-1.66	-2.13	-1.98	-1.83	-1.65
Man is responsible	-1.93	-2.13	-1.88	-1.56	-1.03
Easy to get**	1.21[a]	1.25	1.10[a]	1.67	2.48[b]
Must see MD	-1.13	-1.69	-1.43	-1.28	-1.23
Costs a lot	-2.37	-2.69	-2.39	-2.39	-2.16
Get supplies	-2.41	-2.63	-2.49	-2.33	-2.10
N =	111	16	49	18	31

*p <.05; **p <.01

[a,b]A posteriori results are indicated by these subscripts; see the text for an explanation.

the most likely to believe this method is:

- effective,
- easy to use (and does not require a lot of effort or motivation to use),
- morally acceptable, and
- easy to get.

In the preliminary interviews, most respondents identified rhythm as the calendar method, rather than the temperature method, cervical mucus approach, or any combination thereof. Thus, the latter finding listed above probably reflects the fact that there is nothing to be gotten, so rhythm is by default easy to get.

In terms of disadvantages, rhythm choosers were the least unlikely to believe this method: (a) helps with hormonal or menstrual cycle problems, and (b) prevents venereal diseases.

Table 78 presents the mean ratings of the rhythm method on normative beliefs. Women who chose rhythm were likely to believe doctors, their friends, parents, and boyfriends would approve of their using this method, whereas choosers of other methods generally did not.

Summary of Results on Beliefs, Evaluations, and Motivations to Comply for Choice Intentions

In general, the relationships between the choice intention judgments and ratings of the individual indirect model components were very similar to those obtained in the examination of absolute judgments of intention reported earlier. Choosers of each contraceptive were more likely than those who preferred other methods to believe

Table 78

Mean Ratings of Rhythm on Normative Beliefs by Choice Intention Groups (College Sample Only)

	CHOICE INTENTION GROUPS				
Referent Groups	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Most doctors**	-1.22[a]	-1.81[a]	-0.84[a]	-0.50	0.77[b]
My friends**	-1.77[a]	-2.00[a]	-0.98[a]	-1.06[a]	1.13[b]
My parents**	-1.05[a]	-1.75[a]	-1.02[a]	-0.06	1.10[b]
People in my religion*	1.03	1.31	1.61	1.72	2.29
My boyfriend**	-1.15[a]	-1.56[a]	-0.67[a]	0.33	1.61[b]
N =	111	16	49	18	31

*$p < .05$

**$p < .01$

[a,b]A posteriori results are indicated by these subscripts; see the text for an explanation.

they could attain several positive benefits and, for the most part, avoid some negative consequences by using their method of preference. Each method was also perceived to lack certain advantages and to possess some disadvantages. However, on the whole, respondents preferred those methods for which they apparently believed the benefits outweighed the costs.

Eleven of twenty-four outcome evaluations significantly differed across the choice intention groups. For the most part, these differences reflected variations in response degree rather than direction (i.e., positive versus negative evaluations of a given outcome). This pattern of results tends to support the expectancy-value theory notion that evaluations of outcomes are the same (i.e., are generally positive or negative), regardless of one's perceptions of how they may be attained. Still, there were a few notable exceptions.

Diaphragm choosers positively evaluated: (a) putting a barrier device or object in their bodies, and (b) having a method "on hand" at the time of intercourse, whereas choosers of other methods negatively rated these outcomes. Similarly, women who preferred the condom negatively evaluated being required to see a physician to get a method, while choosers of other methods rated this outcome positively.

Motivation to comply ratings produced only one significant result ($p < .01$). Pill choosers were the most motivated to comply with what they believed doctors wanted them to do. Rhythm choosers were somewhat motivated to comply with their beliefs about what people in their

religion wanted them to do, whereas other groups were not. Finally, all groups on the average: (a) wanted to comply with their boyfriends' wishes, (b) were neutral with respect to their parents, and (c) did not want to comply with what they believed their friends wanted them to do.

The latter finding appears to contradict previous research regarding peer influence on contraceptive use. For example, Thompson & Spanier (1978) found a positive relationship between contraceptive use and general perceptions of friends' opinions on the topic. The perceptual measures they utilized resembled belief statements rather than motivations to comply ratings. In the current study, beliefs about the approval of friends regarding the use of specific contraceptives were generally related to intentions to use those methods. Thus, findings across the two studies are consistent. Still, the fact that respondents in the current study reported they were not motivated to comply with what they believed their friends wanted them to do seems somewhat surprising. One possible explanation for this result is that it may be socially undesirable to admit a wish to conform to the perceived opinions of one's friends. This hypothesis may be particularly true for women who can recall the misinformation they may have encountered in discussions with friends when they were young teenagers.

Significant differences in behavioral belief ratings for each method of preference revealed several similarities across the choice intention groups, as shown in Table 79. These differences were most

Table 79

Significant Differences Among the Choice Intention Groups on Behavioral Belief Ratings of the Most Preferred Method

	CHOICE INTENTION GROUPS				
Outcomes	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Effectiveness	**		**	**	**
Major side effects			**		
Minor side effects					
Birth defects	**				
Easy to use	**		**	**	**
Lots of effort to use	**		**	**	**
Helps with cycle			**		**
Is "natural"		**			
Puts device in body					
Puts drug in body					
Morally acceptable	**	**	**	**	**
Have "on hand"					
Prevents VD					**
Easy to hide	**				
Interrupts sex					
Reduces spontaneity					
Reduces male pleasure					
Reduces my pleasure	**			**	
Is messy	**		**		
Male is responsible					
Easy to get	**	**			**
Must see MD					
Costs a lot					
Must get supplies					

**p <.01

often due to variations in response degree for ratings of the pill and condom; with respect to the diaphragm, withdrawal and rhythm methods, behavioral belief ratings were, in some cases, due to differences in response degree, while in other instances, results reflected opposing views held by some groups.

Choosers of each method were the most likely to believe their preferred method was:

- effective, and
- morally acceptable to themselves.

(Ratings of the diaphragm on effectiveness were significant at the .05 level only.) Similar results were obtained regarding ease of use on ratings of the pill, condom, withdrawal, and rhythm methods. Again, diaphragm choosers were also the most likely to believe this method is easy to use, but this finding was nonsignificant. Women who chose the pill, diaphragm, and rhythm were the most likely to view these methods as easy to get. The reader is referred to the preceding tables for details of results which were idiosyncratic to one or two contraceptives.

Normative beliefs revealed a varying pattern of findings across the choice intention groups. Significant differences generally reflected variations in response degree for ratings of the pill. In contrast, such differences were usually due to opposing views held by some groups on ratings of the diaphragm and rhythm methods. Differential ratings of the condom and withdrawal were the result of variations in both response degree and direction or opposing beliefs.

In general, choosers of the pill, diaphragm, condom, and rhythm methods were the most likely to believe that doctors, their friends, parents, and boyfriends would approve of using their method of preference. Withdrawal choosers held less positive normative beliefs. They were: (a) the least unlikely to believe doctors and their parents would approve of using this method, (b) only slightly likely to believe their friends and people in their religion would approve, but (c) very likely to think their boyfriends would be favorable toward using withdrawal.

Choice Intentions and the Predictive Decision Factor Model: Overview of Analyses

The predictive decision factor model was also examined within the context of choice intentions. Recall that this set of analyses were performed to determine (a) whether a more parismonious (requiring fewer measures) set of predictor variables could be empirically-derived to predict contraceptive intentions and choice, and (b) whether this set of predictors could do as well as, or better than, the expectancy-value model in predicting intentions and choice. Three predictor variables were constructed for each contraceptive method, on the basis of factor analyses results on the set of twenty-nine behavioral and normative belief likelihood ratings. The first scale for each method represented use advantage and social approval. The second scale was composed of items measuring immediate negative effects on sexual intercourse. Lastly, the third scale measured medically-related disadvantages (see the An Alternative Approach to

Predicting Intentions subsection for more details of how these scales were constructed).

To examine the issues described above, several analyses were performed on the college sample data. A discriminant analysis predicting choice among five contraceptives was computed, utilizing the 15 method-specific common factor indices. Then, a series of ANOVAs were performed to examine differences among choosers of each birth control method on each common factor index. Again, the criterion alpha was set at .01 to reduce the chance of Type I errors. Results are briefly summarized; the reader is referred to the accompanying tables for details of the findings.

Discriminant Analysis Predicting Choice: An Examination of the Predictive Decision Factor Model

The discriminant function equation, utilizing the 15 common factor indices as predictors of choice was highly significant ($p < .001$). Consistent with the Fishbein-Ajzen model analyses, an examination of the F-to-Remove values, with all variables in the equation, revealed that some indices did not uniquely contribute to prediction. These findings are presented in Table 80. All five of the use advantages and social approval indices were significant at the .01 level. None of the remaining scales were statistically significant. For the most part, these results closely paralleled those obtained in the corresponding analyses examining absolute judgments of intentions, presented earlier.

Discriminant functions for the predictive decision factor model.

Table 80

Unique Contribution of Each Common Factor Index to the Discriminant Function Equation Predicting Choice Intention (College Sample Only)

Predictor Variables	F-to-Remove Values
Common Factor I: Use Advantages/ Social Approval	
Pill	17.80**
Diaphragm	9.82**
Condom	7.88**
Withdrawal	8.32**
Rhythm	6.39**
Common Factor II: Negative Effects on Sex	
Pill	1.79
Diaphragm	1.17
Condom	0.58
Withdrawal	1.70
Rhythm	0.52
Common Factor III: Medical Disadvantages	
Pill	0.88
Diaphragm	0.76
Condom	0.82
Withdrawal	0.18
Rhythm	0.12

**$p < .01$

Note. Degrees of freedom = 4 and 219 for each F-value.

Four significant discriminant functions were obtained (Wilks' lambda was significant at the .01 level for each function). The canonical R-squared values for each function were: .42, .31, .17, and .14, respectively. These values were very similar to those obtained in analyses of the direct and indirect Fishbein-Ajzen component models.

The standardized discriminant function coefficients were examined for interpretability on the basis of the direction and size of the coefficient loadings. These values are presented in Table 81. For each function, different methods of contraception were primarily contrasted on the use advantages and social approval indices (i.e., Common Factor I). The first function compared the pill to both barrier methods, the condom and diaphragm. The second function contrasted the "natural" methods (i.e., withdrawal and rhythm) with the diaphragm. The third function contrasted three methods: the diaphragm and rhythm versus the condom. Lastly, the fourth function compared the two "natural" methods to each other.

In general, these functions were not strictly similar to those obtained in analyses of the direct and indirect Fishbein-Ajzen component models. However, some consistencies were evident. In all discriminant analyses, barrier and "natural" methods were sometimes "grouped" for comparisons to other methods or were contrasted with each other. Also, the pill was compared to one or more alternative methods on the first function in each analysis.

Classifying cases with known choice intentions, utilizing the

Table 81

Standardized Canonical Discriminant Function Coefficients for the Common Factor Indices (College Sample Only)

Predictor Variables[a]	Standardized Canonical Discriminant Function Coefficients			
	Function 1	Function 2	Function 3	Function 4
Common Factor I: Pill	.79	.20	-.08	-.01
Common Factor II: Pill	-.29	.09	.12	.17
Common Factor III: Pill	-.18	.01	-.04	-.27
Common Factor I: Diaphragm	-.21	-.62	.51	-.13
Common Factor II: Diaphragm	.20	-.09	.16	.08
Common Factor III: Diaphragm	-.00	-.15	-.22	.19
Common Factor I: Condom	-.35	-.15	-.73	.25
Common Factor II: Condom	.04	.02	.14	-.27
Common Factor III: Condom	.19	.12	.12	-.15
Common Factor I: Withdrawal	-.13	.60	-.10	-.70
Common Factor II: Withdrawal	.06	.07	.11	.51
Common Factor III: Withdrawal	-.07	-.10	.06	-.10
Common Factor I: Rhythm	-.06	.43	.41	.62
Common Factor II: Rhythm	-.01	.01	-.24	-.11
Common Factor III: Rhythm	.04	-.03	-.07	.14

[a]Common Factor I: Use Advantages/Social Approval
Common Factor II: Negative Effects on Sex
Common Factor III: Medical Disadvantages

common factor discriminant functions. Classification analyses were performed, utilizing the cases upon which the discriminant functions described above were derived. Such analyses provided evidence for the adequacy or predictive utility of the discriminant functions. As with the Fishbein-Ajzen model analyses, the classification functions were adjusted so that the prior probabilities for predicted group membership were proportional to the number of cases in each choice intention group. The prior probabilities were .49 for the pill, .22 for the condom, .13 for the rhythm method, .08 for the diaphragm, and .08 for withdrawal. These values were almost identical to those utilized in the Fishbein-Ajzen model analyses. Differences across models were due to slight variations in the number of missing cases. The classification results for the common factor indices can be found in Table 82. Overall, 68.2% of the cases were correctly classified. Thus, the predictive decision factor model was slightly less successful in discriminating choice than were the direct and indirect Fishbein-Ajzen component models, which correctly classified 72.4% and 70.7% of the cases, respectively.

An examination of the diagonal entries in Table 82 (from the top left-hand corner to the lower right-hand corner) revealed that the common factor model was best able to discriminate pill choosers (88.0% correctly classified) and was least successful in predicting choice of withdrawal (42.1% correctly classified). Roughly half of those who preferred the diaphragm, condom, and rhythm methods were correctly identified. These results are very similar to those obtained with the direct and indirect expectancy-value models.

Table 82

Group Classification Results Based on Discriminant Functions Using the Common Factor Indices As Predictors of Choice Intention (College Sample Only)

		Predicted Group Membership % Correct Classifications				
Actual Group Membership	N of Cases	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Pill	117	88.0	0.0	5.1	2.6	4.3
Diaphragm	19	15.8	52.6	31.6	0.0	0.0
Condom	52	28.8	3.8	51.9	3.8	11.5
Withdrawal	19	36.8	0.0	10.5	42.1	10.5
Rhythm	32	21.9	0.0	21.9	9.4	46.9

Percent of "grouped" cases correctly classified: 68.20%

Most of the misclassifications for the diaphragm fell into the condom category. This finding may be partially due to the notion that both contraceptives are "barrier" methods and thus, may be perceived as being similar on several dimensions. The majority of misclassifications for the condom and withdrawal were assigned to the pill category. This outcome may have been primarily the result of the prior probabilities classification criterion utilized. Recall that the pill category had the largest prior probability (.49) assigned to it and, therefore, all cases were more likely to be classified into this group than any other. Lastly, misclassifications for the rhythm method fell equally into two categories, the pill and condom. Again, misclassifications for rhythm choosers into the pill, and to a lesser extent, the condom categories may have been largely due to the prior probabilities criteria utilized.

In summary, the direct and indirect Fishbein-Ajzen models were slightly more successful than the predictive decision factor model in discriminating choice among contraceptives. The largest difference in the percentage of all cases correctly classified was only 4.24% for the direct Fishbein-Ajzen model versus the predictive decision factor model. Although this difference may be statistically significant given the sample size, it is not meaningful. Analyses for each model revealed that all predictor variables did not uniquely contribute to discrimination. In the predictive decision factor model, the use advantages and social approval indices representing perceptions of effectiveness, ease of use, naturalness, moral acceptability to one's self, and normative beliefs were the best discriminating

variables.

Why Choice Intentions Differ: An Examination of the Common Factor Indices

A series of one-way ANOVAs were performed to examine systematic differences, across the choice intention groups, on the fifteen common factor indices. When the overall F-value was significant, Scheffe's a posteriori procedure was utilized to determine which pairs of groups significantly differed. To reduce the chance of alpha errors, the criterion p-value for the overall F was set at the .01 level. Because Scheff's procedure is conservative, alpha was set at .05 for the follow-up analyses. As before, significant differences between pairs of groups were labeled with lower-case letters in the accompanying table; means identified by different letters indicate a statistically significant difference at the .05 level or better. General trends in the data are summarized in the text. The reader is referred to the accompanying table for details of the a posteriori findings.

Table 83 presents the mean ratings of each choice intention group on the common factor indices. Choosers of each method were the most likely to believe that their method of preference was characterized by use advantages and social approval. Differences on ratings of the pill and condom reflected variations in response degree. In contrast, differential ratings on this index for the diaphragm and withdrawal were due to opposing views held by the choosers of these methods versus those who preferred other contraceptives. Ratings of

Table 83

Mean Ratings of the Common Factor Indices for Each Contraceptive Method by Choice Intention Groups (College Sample Only)

Common Factor Indices	CHOICE INTENTION GROUPS				
	Pill	Diaphragm	Condom	Withdrawal	Rhythm
Common Factor I: Use Advantages/ Social Approval					
Pill**	1.57^{a}	0.11^{b}	0.43^{b}	0.65^{b}	0.14^{b}
Diaphragm**	-0.46^{a}	1.39^{b}	-0.14^{a}	-0.40^{a}	-0.50^{a}
Condom**	0.01^{a}	0.30^{a}	1.26^{b}	0.46	0.36^{a}
Withdrawal **	-1.04^{a}	-1.35^{a}	-0.59^{a}	0.87^{b}	-0.00
Rhythm**	-0.23^{a}	-0.44^{a}	0.02^{a}	0.53^{a}	1.62^{b}
Common Factor II: Negative Effects on Sex					
Pill*	-2.44^{a}	-2.19	-2.30	-2.34	-1.84^{b}
Diaphragm	0.12	0.17	-0.42	-0.47	-0.14
Condom	0.91	1.16	0.43	1.05	0.84
Withdrawal*	1.28	0.93	1.17	0.33	1.19
Rhythm	-0.27	-0.64	-0.24	-0.66	-0.84
Common Factor III: Medical Disadvantages					
Pill	1.16	1.68	1.38	1.39	1.35
Diaphragm	0.53	0.32	0.61	0.31	0.51
Condom	-1.72	-1.76	-1.93	-1.61	-1.54
Withdrawal	-2.16	-2.26	-2.33	-2.40	-2.13
Rhythm	-2.11	-2.40	-2.31	-2.25	-2.17
N =	117	19	52	19	32

*$p < .05$ **$p < .01$ ^{a,b}A posteriori results are indicated by these subscripts; see text for an explanation.

Note. One a posteriori result was significant which was not indicated above due to a lack of space: Rhythm choosers were different from pill and diaphragm choosers on ratings of the first common factor for withdrawal.

rhythm on this factor reflected both differences in response degree and opposing views. No other significant differences were obtained at the .01 level, which was not surprising in light of the discriminant analysis results reported above. Perceived use advantages and social approval apparently outweigh any negative consequences attributed to methods of preference by choosers of each contraceptive. These results closely parallel those obtained with the Fishbein-Ajzen model.

CONCLUSIONS

The final section of this manuscript is organized in the following manner. First, a review and discussion of the major findings of the study are presented. Second, sampling or generalizability issues are discussed. Finally, policy implications for government and service delivery agencies and potential directions for future research are suggested.

Major Results

The discussion of the major findings of this study is divided into several subsections. In general, these subsections include: (1) a review of analyses examining the expectancy-value theory, and (2) a similar review with respect to the predictive decision factor model. The comparative utility of each model in accounting for intentions to use each of the six contraceptives under investigation and relative choice among the methods is discussed. Incorporated into this review is an examination of methodological and psychometric considerations.

Absolute judgments of intention and the expectancy-value model. The Fishbein-Ajzen model successfully predicted intentions to use each contraceptive method in both the college and clinic samples. The direct (i.e., AB and SN) and indirect (i.e., ΣBe and ΣNMc) component regression models accounted for 39% to 61% of the

variance in the dependent measures within the college sample. Between 19% and 72% of the variance in intentions was explained within the clinic sample. Consistent with the theory, the direct measures were generally better predictors of intentions than their indirect counterparts.

Each direct and indirect component significantly contributed to prediction for the college sample. In the direct components model, the attitude toward the behavior indices always carried a larger beta weight than the subjective norm measures; however, the reverse was obtained in examinations of the indirect components. For the most part, a similar, although in some cases statistically nonsignificant, pattern of results was found for the clinic sample. The findings based on the latter group may have been less reliable and statistically significant due to the smaller sample size. Several methodological and psychometric problems (e.g., differences in specificity of item wording across components, differing degrees of reliability and multicollinearity within sets of predictor variables) were identified, which may explain the apparent reversal of the relative importance of the direct versus indirect attitudinal and normative model components in predicting intentions.

It was concluded that attitudinal and normative factors may not need to be separated in the manner suggested by Fishbein and Ajzen, given that both components (a) tend to be highly intercorrelated, and (b) are, in part, functions of beliefs, either about properties

of the target behavior in question or about what important others think one should and should not do with respect to the target behavior. (Behavioral and normative beliefs were not treated as conceptually distinct concepts in the predictive decision factor model; see below.) In general, both attitudinal and normative influences seem to affect intentions to use different methods of birth control, but their relative importance to prediction was not clear in the present study.

The multiple R-squared values obtained in this study were somewhat lower than those obtained in other research utilizing the expectancy-value model (see Fishbein & Ajzen, 1975 for a review of this research), including studies of contraceptive intentions with respect to a single alternative, the pill (Davidson & Jaccard, 1975; Jaccard & Davidson, 1972). The relatively lower success of the Fishbein-Ajzen model in the present investigation may have been due in part to the method of measurement employed.

Given that the expectancy-value model is developed from the orientation of attitude research, Fishbein and Ajzen would probably recommend that all assessments of a particular contraceptive be grouped for "alternative-wise" rather than "attribute-wise" judgments as was done in this study. To parallel previous research in this area, all judgments of the pill would have been followed by assessments of the IUD, and so forth. Such a procedure may have resulted in greater internal consistency for the indirect attitude toward the

behavior indices (i.e., ΣBe); increased reliability may have, in turn, allowed the ΣBe measures to play a more definitive role in predicting intentions to use each contraceptive. However, high internal consistency was not expected nor necessarily desirable given that the ΣBe indices were composed of many attributes representing a variety of diverse behavioral outcomes (e.g., prevents pregnancy effectively, is messy, interrupts on-going sexual activity).

In general, the survey was designed to represent a choice intention or decision-making situation in which people presumably compare alternatives across a set of relevant dimensions. Thus, an "attribute-wise" rather than "alternative-wise" procedure for eliciting judgments was more appropriate. That is, respondents were presented with an attribute (e.g., prevents pregnancy effectively) and rated each contraceptive with respect to that attribute, then judged each method in terms of the next attribute, and so forth. (Further implications of this procedure are discussed below.)

Order effects and reliability of regression findings. One methodological factor which has received little attention within the context of the Fishbein-Ajzen model is whether certain types of order effects influence results. Most researchers utilizing this theory have ordered their survey items such that intentions appear first, followed by measures of the direct and lastly, the indirect components. The effects of (a) variations in this ordering and (b)

different item sequences within a component set on obtained results need further investigation.

In the present study, four versions of the survey were developed, resulting in a two-by-two sequence effect design. Order effects were manipulated by varying the sequence of: (a) sets of items measuring different expectancy-value model components, as a methodological control (this variation primarily affected the placement of the intention measures), and (b) items within a set, as a test of the generalizability of individual item orderings.

A number of univariate and multivariate analyses of variance and correlational tests were performed to examine the impact of order on results. Few significant findings were obtained. The pattern of results did not reveal any consistency of order effects across versions of the survey or contraceptive methods. In general, it was concluded that sequence effects as defined in this study did not artifically influence responses. Still, a consistency factor may have been operating in the sense that respondents may have been motivated to provide consistent responses, regardless of the order in which items were presented.

Separate regression analyses predicting intentions were performed on groups defined by which of the four survey versions they completed. Because versions of the survey were randomly distributed, these analyses can be viewed as an application of the "split sample" technique for examining the stability or reliability of regression

results (Nunnally, 1978).

The pattern of results suggested that there was a modest level of stability or reliability within the college sample.[3] For some contraceptive methods, a few inconsistencies were found in the relative size and significance of beta weights for pairs of predictor variables. These findings may have been partially due to the small sample size per version of the survey (approximately 70 college respondents per version) and the multicollinearity among predictor variables. The most consistent results were obtained for predicting intentions to use the pill, perhaps because respondents were very familiar with this method. Findings with respect to the other five contraceptives were less consistent, but for the most part, the pattern of results generally paralleled those obtained for the pill.

The contribution of external variables to the prediction of intentions within the expectancy-value model. The expectancy-value theory proposes that variables "external" to the model (e.g., other attitudes, demographics, personality factors) affect intentions and behavior only indirectly through their influence on (a) specific behavioral or normative beliefs, outcome evaluations, and/or motivations to comply, or (b) the relative weights of AB and SN. Fishbein (1979) suggested that one way to examine the effects of external variables on intentions is through the use of hierarchical regression

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[3]These analyses were not performed on the clinic sample because the sample size per survey version was insufficient.

procedures. In such analyses, external variables are individually added to the regression equation containing the direct model components (i.e., AB and SN). Within this context, external variables would not be expected to significantly improve the prediction of intentions. Fourteen external variables were examined to test this hypothesis, representing major demographics, sexual experience and previous use of each method, expectations regarding future sexual behavior and three locus of control measures. The patterns of significant and marginal, but nonsignificant, findings were somewhat unique for each contraceptive method; these patterns also differed across the two samples. Overall, most external variables did not markedly improve the prediction of intentions in either sample. Thus, the expectancy-value model hypothesis regarding the irrelevance of external variables in prediction was partially supported.[4]

However, the external variables of sexual experience and previous use fairly consistently and substantially incremented

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[4]External variables might have played a more definitive role in predicting intentions if different analytic procedures had been employed. For example, simultaneous or step-wise regressions, in which external variables would have been placed on an "equal footing" with the direct model components, may have shown that some external variables are more important predictors of intentions than the AB and SN indices. However, such analytic procedures would not have accurately represented the theoretical notions of expectancy-value theory as outlined in Ajzen and Fishbein (1980). In addition, step-wise regressions in general tend to capitalize on chance, particularly when a large number of variables comprise the predictor set (Cohen & Cohen, 1975).

predictability across contraceptive methods for the college sample.[5] On the average, nonvirgin-ever users intended to use methods with which they had had previous experience. Virgins intended to use the pill and condom, but did not intend to use the IUD, diaphragm, withdrawal, or rhythm methods. Nonvirgin-never users did not intend to use methods with which they had no previous experience.

As previously discussed, there are several possible explanations for why some external variables significantly incremented the prediction of intentions beyond what was achieved by the direct model components alone. First, the model may be correct and some external variables accounted for residual variance in intentions because the direct model components and intentions were imperfectly measured. This explanation is plausible to the extent that these measures were unreliable. The intention variables utilized in this study were additive indices of three measures; Cronbach's alpha across the set of contraceptive methods ranged from .89 to .94 for the college sample, and from .85 to .97 for the clinic sample. Similarly, responses to four semantic-differential scales, specific to each contraceptive method, were summed to produce the attitude toward the behavior or AB indices. Cronbach's alpha ranged from .80 to .89 for both the college and clinic samples. The subjective norm or SN

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[5]Similar analyses were not performed on the clinic sample due to a lack of variation in experience for four methods, and for two methods, ever versus never use did not significantly augment the prediction of intentions.

measure for each contraceptive was composed of a 1-item scale; thus, a statistical index of reliability was not available.

In general, the reliabilities for the intention and AB indices were uniformly high. However, the SN measures may have been unreliable. Therefore, the explanation that some external variables accounted for residual variance in intentions due to measurement unreliability cannot be entirely ruled out.

A second explanation concerning why some external variables accounted for residual variance in intentions is that expectancy-value theory may be incorrect; that is, external variables may, in fact, have a direct impact on intentions. One external variable which has received considerable attention in this context is past behavior.

As noted in the INTRODUCTION, several investigators (Bentler & Speckart, 1979; Fazio & Zanna, 1978; Fazio et al., 1978; Regan & Fazio, 1977; Sherman et al., 1982; Songer-Nocks, 1976) have found that direct experience moderates the attitude-behavior or the intention-behavior relationship. These studies suggest that the effect of past experience on subsequent behavior may not be entirely mediated by intentions or other expectancy-value model components, as delineated in the theory. The current study also provided some evidence in support of this notion. That is, previous experience was found to be directly related to intentions and thus, may also influence behavior.

The apparent direct effect of external variables on intentions may actually be due in part to the influence of these variables on the relative weights of AB and SN in the regression equation. In other words, subgroups defined by an external variables (e.g., previous experience) may have different relative weights for AB and SN. Utilization of these subgroup-specific weights for AB and SN may explain more variance in intentions than weights derived for the total sample. Therefore, an external variable may not account for residual variance in intentions if the impact of the variable on the relative weights of AB and SN was included in the regression model.

One test of this hypothesis would utilize the following analysis. Separate regression equations predicting intentions for each subgroup defined by the external variable in question would be computed. Respondents would then be assigned a new "estimated intention" value on the basis of the appropriate regression equation. Finally, actual intentions would be predicted by (a) the new "estimated intention" values and (b) the external variable in question, using a hierarchical regression analysis. If the external variable, in this context, did not account for a significant proportion of residual variance, it would be concluded that the impact of the variable on intentions was indirect, due to its influence on the relative weights of AB and SN. If instead, the analysis showed that a significant proportion of residual variance was explained by the external variable, it would be concluded that this variable had a direct effect on intentions, beyond its impact on the relative

weights of AB and SN.

Although this analysis was not carried out, the hypothesis that an external variable indirectly affects intentions as a result of its impact on the relative weights of AB and SN seems implausible for two reasons. First, due to the high multicollinearity between AB and SN across contraceptives, changes in the relative weights will not have a large effect on variance explained.

The second reason involves a detailed examination of the data presented in Table 84 (excerpted from Table 8). This table presents separate regression analysis results for each subgroup defined by the sexual experience and previous use variables. Recall that sexual experience and previous use were the only external variables to improve prediction beyond the explanatory power of AB and SN for four of six contraceptives (i.e., the pill, condom, withdrawal, and rhythm methods; also see footnote 5).

The relative size of the AB and SN beta weights across the experience groups for each contraceptive varies substantially, as indicated in Table 84. However, it is unclear whether this result is largely due to the high multicollinearity among the sets of predictor variables or reflects true differences for the experience groups. The univariate correlations between AB or SN and intentions for each subgroup (i.e., virgins, ever users and never users) are not subject to such multicollinearity.

Cohen and Cohen (1975) provide a test for the homogeneity of

Table 84

Predictions of Intentions to Use Four Contraceptive Methods by Sexual Experience and Previous Use (College Sample Only)

CONTRACEPTIVE METHODS

Predictor Variables	PILL						CONDOM					
	Virgins		Ever Users		Never Users		Virgins		Ever Users		Never Users	
	r	B	r	B	r	B	r	B	r	B	r	B
AB	.78**	.47**	.67**	.55**	.67**	.61**	.72**	.54**	.72**	.55**	.71**	.59**
SN	.78**	.47**	.52**	.31**	.45**	.10	.62**	.31**	.63**	.25*	.58**	.18
R		.86**		.73**		.68**		.76**		.75**		.72**
R^2		.74		.53		.46		.58		.56		.53
df		2,110		2,65		2,73		2,112		2,81		2,57

	WITHDRAWAL						RHYTHM					
	Virgins		Ever Users		Never Users		Virgins		Ever Users		Never Users	
	r	B	r	B	r	B	r	B	r	B	r	B
AB	.68**	.54**	.66**	.48**	.63**	.60**	.72**	.44**	.74**	.65**	.70**	.63**
SN	.54**	.27**	.58**	.31**	.29*	.09	.71**	.42**	.50**	.17	.47**	.15
R		.71**		.71**		.64**		.79**		.75**		.71**
R^2		.51		.50		.41		.62		.56		.51
df		2,111		2,79		2,62		2,111		2,47		2,92

*p <.05

**p <.01

[a]This table was excerpted from Table 8.

correlation coefficients based on different subgroups (strictly speaking, the test is most appropriate for different random samples). This test of homogeneity was applied to each set of correlations for the pill, condom, withdrawal, and rhythm methods.[6] For example, this homogeneity test was computed on the correlations between the AB index and intentions to use the pill for virgins, ever users, and never users. Parallel analyses were performed for the remaining contraceptives and for each method with respect to the SN-intention correlations. Thus, a total of eight homogeneity of correlations tests were computed. Two of the eight tests reached statistical significance. The SN-intention correlations across experience groups for the pill ($p < .01$) and rhythm method ($p < .05$) were statistically different. These results may have been due in part to the possibly low reliability of the SN measure for each contraceptive method, which was composed of a one-item scale. In contrast, the AB indices which were uniformly reliable in the total sample, did not differentially correlate with intentions across the experience subgroups.

In general, the above discussion provides a counter-argument to the explanation that the apparent direct effects of some external variables on intentions may be accounted for by their influence on the relative contribution of AB and SN to prediction. For the most part,

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[6]Similar analyses were not computed for the IUD and diaphragm because previous experience was not found to augment the prediction of intentions beyond the direct expectancy-value model components in the college sample.

the evidence in this study and other research suggests that external variables, particularly past behavior, may have a direct impact on intentions, contrary to expectancy-value theory.

Fishbein (1979) has argued that an external variable which increments the prediction of intentions beyond the explanatory power of the direct model components may do so as a result of its relationship to intervening model components such as specific beliefs, evaluations, and/or motivations to comply. Because of the consistency with which sexual experience and previous use augmented prediction, these variables were incorporated into analyses examining how and why college respondents differed across the set of individual indirect components of the model (see footnote 5). In general, evidence supporting Fishbein's argument concerning the relationship between external variables and intervening model components was obtained. Virgins, ever users, and never users held some differing beliefs and evaluations, which Fishbein would hypothesize lead to their differing intentions. These results are summarized below.

Differences in beliefs, evaluations, and motivations to comply across the intention and experience factors. Mean differences between intenders and nonintenders of each contraceptive in both samples were generally consistent with stated intentions. That is, respondents who intended to use a method were (a) more likely to associate positive outcomes and (b) less likely to link negative consequences with using that method than were nonintenders. Intenders apparently believed that certain benefits outweighed specific costs of using

methods for which they had favorable intentions, whereas nonintenders did not.

Beliefs about perceived advantages including effectiveness, ease of use, and moral acceptability to oneself differentiated both college and clinic intenders from nonintenders, across more than one contraceptive method, in directions consistent with their intentions. Beliefs concerning disadvantages, such as major side effects and birth defects, similarly differentiated the intention groups for medical methods of contraception (i.e., the pill, IUD, and diaphragm) within the college sample.

Fewer significant differences between intenders and nonintenders were obtained across contraceptive methods on outcome evaluations within both samples. Most of these findings were idiosyncratic with respect to one or two forms of birth control. In general, it appeared that intentions were largely under the influence of behavioral beliefs rather than outcome evaluations.

In terms of experience, most of the college sample results indicated that nonvirgin-ever users gave more extreme belief ratings of both advantages and disadvantages than did either virgins or nonvirgin-never users. Ever users of each method were also more likely to intend to use those methods than either of the remaining groups. Ajzen and Fishbein (1980) have argued that direct experience serves to develop more realistic expectations about the personal consequences of behavior, and thus, the intentions of those with previous experience

are likely to remain stable over time. In addition, such expectations may also have lead to the more extreme or definitive responses that ever users tended to give. Overall, the majority of significant differences on belief ratings among the experience groups were generally idiosyncratic to ratings of one or two contraceptives. Therefore, this pattern of results across contraceptive methods was not as consistent as those obtained on the intention factor.

Ratings of normative beliefs and motivations to comply were very consistent across contraceptive methods for college and clinic intenders versus nonintenders. In general, respondents who intended to use a method were more likely than nonintenders to believe salient referent groups would approve of their using that method. Few significant differences were obtained on the motivation to comply ratings. College respondents on the whole were (a) motivated to comply with what they believed most doctors and their boyfriends wanted them to do with respect to using birth control, and (b) were not similarly motivated with regard to their friends, parents, and people in their religion.

A slightly different pattern of results were obtained from the clinic sample. In this case, respondents were motivated to comply with the views of most doctors, but not with friends and people in their religion. Motivation to comply ratings with respect to parents and boyfriends were mixed. In general, social influence was primarily determined by normative beliefs rather than motivations to comply in both samples. Parallel findings in terms of the experience factor

were somewhat less consistent across contraceptive methods in the college sample.

Absolute judgments of intention and the predictive decision factor model. Alternative decision analysis models are available for predicting intentions to perform a given behavior. Such an analytic approach, conceptually similar to social judgment theory (Hammond et al., 1975) was undertaken in this study. The major goals of this analysis were to determine (a) whether a more parsimonious (requiring fewer measures) and content-specific set of predictor variables could be empirically-derived to predict contraceptive intentions and choice, and (b) whether this set of predictors could do as well as, or better than, the expectancy-value model components in predicting intentions and choice.

As noted in the INTRODUCTION, social judgment theory utilizes a correlational approach to describing human decision processes. Basically, judgments are predicted from a linear combination of cue dimensions using standard multiple regression procedures. Cue dimensions are information sources which define a stimulus object. For example, in the contraceptive domain, cues may include perceived effectiveness, ease of use, social approval, and so forth. The beta weights generated through multiple regression represent the importance of each cue for a set of judges.

In terms of predicting judgments (e.g., intentions), social judgment theory differs from expectancy-value theory in three major

respects. First, the predictor variables used in both models represent different levels of specificity. In expectancy-value theory, global, abstract attitudinal and normative measures (i.e., AB and SN) serve as predictors of intentions. In contrast, social judgment theory utilizes predictors which represent more specific cue dimensions; in fact, such cues would be essentially equivalent to the individual behavioral and normative beliefs conceptualized as being indirectly related to intentions in the Fishbein-Ajzen model.

A second major difference between the two theoretical approaches concerns how cues are conceptually distinguished. In expectancy-value theory, beliefs are divided into two categories (a) behavioral and (b) normative. Social judgment theorists would not distinguish behavioral from normative beliefs, given that both are subjective probability estimates that a particular outcome will result from the performance of a given behavior, be that outcome social approval or, for example, major health hazards. Instead, these theorists would distinguish cues on the basis of content similarity.

A third major difference between the two theoretical approaches concerns the weighting of certain model components. In expectancy-value theory, behavioral and normative beliefs are weighted by outcome evaluations and motivations to comply, respectively. Social judgment theorists would consider such weights to be poor estimates of the importance of each cue for a given judge.[7] Rather, through a

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[7]Note, however, that the weights used in expectancy-value

series of trial judgments, empirical weights would be derived for each respondent, given that these theorists believe people are not very accurate at directly providing their own weights. In lieu of such an extensive process, social judgment theorists would instead utilize unit weights or consensus weights generated by regression analyses aggregating across respondents for each cue dimension in their predictive models (Hammond et al., 1975).

In general, both models assume that a linear regression model will accurately describe decision outcomes (i.e., intentions). As noted in the INTRODUCTION, this assumption is acceptable when the goal is prediction, given that linear models in general are robust and have been found to successfully predict judgments, even if the underlying decision process is nonlinear (Dawes, 1979; Hoffman, 1960). Each model relies on a regression (or, by extension, a discriminant analysis) program to generate best-fitting weights for predictor components. In expectancy-value theory, the predictors are the attitude toward the behavior and subjective norm measures (i.e., AB and SN). Cue dimensions which would serve as predictors in a social judgment theory analysis would be essentially equivalent to the individual behavioral and normative beliefs. In the current context, these dimensions were composed of additive indices derived through factor

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theory for individual behavioral and normative beliefs (i.e., outcome evaluations and motivations to comply) are not importance ratings in the general sense. Ajzen and Fishbein (1980) argue that such importance ratings are not appropriate weights because the importance factor is apparently accounted for in other model components.

analytic procedures on the set of individual beliefs (see below).

The creation of a decision analysis model, conceptually similar to social judgment theory required a number of steps. For each contraceptive method under investigation, there was a set of twenty-nine behavioral and normative beliefs. Thus, it was necessary to: (2) reduce this set by eliminating irrelevant or less important beliefs, and (b) determine whether a reduced belief set common to each contraceptive could be devised for the sake of comparability across methods of birth control. Therefore, factor analytic procedures were utilized to identify "common factors" across contraceptives and to eliminate irrelevant beliefs on the basis of responses obtained from the college sample.

Three "common factor" indices were created for each contraceptive. The behavioral and normative beliefs which "loaded" on each factor were simply summed to create an additive index; thus, every component of each index received a unit weight. The first scale for each method was composed of nine items representing use advantages (i.e., effectiveness, ease of use, and "naturalness") and social approval (i.e., moral acceptability to oneself plus the five normative beliefs). The second scale consisted of four items representing immediate negative effects on having sexual intercourse (i.e., interrupts sex, reduces spontaneity, reduces my partner's pleasure, reduces my own pleasure). The third scale consisted of six items measuring medically-related disadvantages (i.e., causes major side effects, causes minor side effects, causes birth defects, puts a

device/object in my body, puts a drug/chemical in my body, and must see a doctor to get the method). The remaining 10 of the original 24 behavioral beliefs were excluded from all common factor indices. These indices may be interpreted as representing the primary dimensions upon which young women assess contraceptives for acceptability.

Regression analyses were performed utilizing the common factor indices as predictors of intention to use each contraceptive. For the college sample, the direct Fishbein-Ajzen components model (i.e., AB and SN) was slightly more successful than the predictive decision factor model in predicting intentions to use four of six contraceptives. In contrast, the predictive decision factor model accounted for more variance in intentions to use four of six methods than the indirect Fishbein-Ajzen components model (i.e., ΣBe and ΣNMc). A similar pattern of results were obtained with the clinic sample data; the direct components model tended to be the most successful in predicting intentions, followed by the predictive decision factor model and then the indirect components model. The common factor indices may have been generally more predictive of intentions in both samples than the indirect Fishbein-Ajzen components model because the former: (a) was probably composed of only the most relevant discriminating beliefs, and (b) may have been more internally consistent than the latter.

In both samples, the common factor scales representing use advantages and social approval had the largest significant beta weights across contraceptive methods. The pattern of findings

regarding the remaining two common factor indices was mixed across methods and samples. In general, intenders of each contraceptive were more likely than nonintenders to believe those methods were characterized by specific use advantages and social approval.

Overall, the predictive decision factor model was about as successful as the Fishbein-Ajzen model in predicting intentions. As noted in the INTRODUCTION, the former model has two advantages over the latter. First, the predictive decision factor model is more parsimonious than the expectancy-value approach in the sense that fewer measures must be obtained in the data collection stage. That is, direct measures of respondent-specific subjective weights such as outcome evaluations and motivations to comply need not be obtained. In addition, such weights did not markedly improve the prediction of intentions as evidenced by the variance accounted for with the predictive decision factor model versus the indirect Fishbein-Ajzen components model. Second, the predictor variables devised for the decision analysis (i.e., the common factor indices) were more content-specific, descriptive and informative than those used in expectancy-value theory (i.e., the AB and SN components).

The common factor indices derived for the predictive decision factor model indicate that five to eight belief items could be constructed to measure the dimensions most important for predicting intentions to use any form of birth control. Fishbein and Ajzen would likely agree with this notion. However, the factor analysis results suggest that the cues relevant to contraceptive intentions partition

into advantages or positive outcomes and disadvantages or negative consequences, rather than behavioral versus normative beliefs as conceptualized in expectancy-value theory. Similar factor structures, yielding conceptually distinct positive and negative dimensions of evaluation, have been obtained in other research (Bryant & Veroff, 1982), supporting the interpretation given to the present findings.

All in all, the predictive decision factor model examined in this study does not disprove or cast doubt on the utility or explanatory power of the Fishbein-Ajzen model. Rather, it has presented a more parsimonious empirical approach to predicting intentions. In addition, results based on the linear decision model have provided some suggestions for how future research in this area could be improved by incorporating certain measurement and substantive considerations noted above.

Predicting and understanding relative judgments or choice intentions: A review of the major findings based on expectancy-value theory. As noted in the INTRODUCTION, expectancy-value theory has traditionally been used to describe intentions to perform a single behavior. In the contraceptive domain, several studies (Davidson & Jaccard, 1975; Jaccard & Davidson, 1972; Werner & Middlestadt, 1979) have successfully employed this model to predict intentions to use the pill or actual pill use. However, these studies have implicitly treated contraceptive decisions as a "pill-no pill" choice when a more realistic view is that the relative desirability of several alternatives may be compared and considered simultaneously.

From a conceptual standpoint, the issue to be addressed is how people choose among multiple alternative behaviors. Decision theorists have developed a variety of models to examine this issue; a number of these approaches were described in the INTRODUCTION. One such approach to assessing choice among two alternatives is the additive-difference decision model developed by Tversky (1969; cited in Payne, 1976). It is assumed that judges compare alternatives directly on relevant dimensions, then a difference is determined for each dimension and finally, the results are summed to yield a relative preference.

Sperber, Fishbein and Ajzen (1980) employed an expectancy-value analysis, conceptually similar to Tversky's additive-difference model, in a study of women's occupational orientations. Choice intention was measured using a paired-comparison procedure. It was hypothesized and found that choice intention could be predicted by the numerical difference between responses on two standard intention measures, one for each alternative behavior (e.g., intention to be a homemaker versus intention to pursue a career). Within this analysis, differential indices were also computed in a similar manner for other expectancy-value model components and were then used to predict differential intentions.

Published research, utilizing the Fishbein-Ajzen model to predict choice intentions, has not addressed complex situations in which more than two alternatives may be chosen. Utilizing the Sperber et al. (1980) additive-difference model in the current context would have

required respondents to make fifteen pair-wise choice intention judgments for the six contraceptive methods, in addition to rating each method individually on a standard intention scale. In this analytic framework, fifteen multiple regression analyses of differential intentions would have been necessary to test the expectancy-value model. Instead, a conceptual and analytic expansion of the model was developed to allow a more parsimonious examination of choice intentions.

The decision task utilized in this study was designed to encourage comparative judgments among the contraceptive alternatives. Survey items were organized to elicit "attribute-wise" judgments. That is, respondents were presented with an attribute (e.g., causes major health hazards) and rated each contraceptive in terms of that attribute, then rated each method with respect to the next attribute, and so forth. For consistency, the contraceptive choice measure, or the dependent variable, required respondents to make a comparative decision by indicating which method they would be most likely to intend to use in the next six months.

Two discriminant analyses on the college sample data were performed to examine choice among five contraceptives within the Fishbein-Ajzen model framework (the IUD was dropped because an insufficient number of respondents chose this method).[8] In one analysis, the appropriate direct model components served as predictors, while in the

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[8]The clinic sample data were not examined due to a lack of response variability across the choice intention categories.

second analysis, the indirect model components were utilized. Both discriminant function equations were highly significant. In the analysis of the direct model components, it was found that the attitude toward the behavior indices uniquely contributed to prediction, whereas the subjective norm measures generally did not. The pattern of results was not as clear for the analysis of the indirect model components. For three contraceptives, only one component of each method-specific pair (i.e., either the ΣBe or the ΣNMc measures) uniquely contributed to prediction. For two methods, both indirect components were significant predictors.

As with absolute judgments of intentions, psychometric concerns, specifically high multicollinearity among the sets of method-specific predictor variables, made it difficult to determine the relative importance of the attitudinal and normative factors in discriminating choice. It was concluded that both components play a role in predicting preference. Given the degree of significance obtained, in terms of the F-to-Remove values for each predictor variable, it appeared that attitudes may be slightly more important predictors than perceived norms.

Four discriminant functions were derived for each model. The coefficients for the direct components produced a more clearly interpretable pattern of results than did those obtained for the indirect components. The first function in both models contrasted the pill with other contraceptives. Across the remaining functions, judgments of (a) male-oriented methods (i.e., condoms and withdrawal), (b)

barrier methods (i.e., the diaphragm and condom), and (c) "natural" forms of birth control (i.e., rhythm and withdrawal) were often "grouped" for comparisons to other methods, or were contrasted against one another.

Classification analyses were performed to test the adequacy of the derived discriminant functions. Overall, the direct components model was slightly more successful in correctly classifying cases than were the indirect components. These results support the expectancy-value notion that the direct model components are better predictors of intention than their indirect counterparts. Both models were best able to discriminate pill choosers and were least successful in classifying women who preferred withdrawal. Most of the misclassifications for methods other than the pill fell into the pill category. These results may have been partially due to the prior probabilities criterion used in the classification analyses; the pill category had the largest prior probability assigned to it, based on the proportion of respondents actually preferring this contraceptive, and thus, all cases were more likely to be assigned to this group than any other.

The role of external variables in predicting choice intentions within an expectancy-value theory analysis. To parallel the examination of the absolute judgments of intention, analyses were performed to determine whether variables external to the Fishbein-Ajzen model significantly improved the discrimination of choice intentions beyond what could be achieved by the direct model components alone. Four of

fourteen external variables significantly improved the discrimination, contrary to expectancy-value theory.

As with the absolute judgments of intention analyses, the most significant findings in the context of choice intentions were obtained for sexual experience and previous use. Analyses revealed that (a) status as a virgin versus nonvirgin, and (b) previous use of the pill uniquely and substantially contributed to discrimination among the choice intention groups. Ever use of the pill was more frequently related to choice of the pill, than ever use of any other method with preference for those methods. Thus, previous pill usage produced more "product loyalty" than experience with other forms of birth control. It was speculated that actual use of the pill may have reinforced positive perceptions and/or counteracted negative attitudes toward using this method, thus leading to continued preference for the pill. In contrast, experience with the condom, withdrawal, and rhythm methods may have produced the opposite perceptions, leading to some dissatisfaction and a change in contraceptive preference for some previous users.[9]

Differences in beliefs, evaluations, and motivations to comply among the choice intention groups. To gain an understanding of the systematic differences in choice intentions, one-way ANOVAs were performed, utilizing the ratings of each contraceptive across the set of

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[9]Ever use of the diaphragm was not included in these analyses due to an insufficient sample size for this category.

individual indirect components as the dependent variables. In general, results of the choice intention analyses were very similar to those obtained in the examination of absolute judgments of intention discussed earlier. For all methods, choosers of a contraceptive were more likely than choosers of other methods to believe they could (a) gain certain positive benefits and (b) avoid some negative consequences by using their method of preference. For example, choosers of each contraceptive were the most likely to believe their preferred method was effective, easy to use, morally acceptable to themselves, and easy to get. In addition, choosers of methods other than withdrawal were the most likely to believe salient referent groups would approve of their chosen method. Withdrawal choosers, on the other hand, generally believed that only their boyfriends would be favorable toward their using this method. Although each method was perceived to lack certain advantages and to be characterized by some disadvantages, choosers were apparently willing to make those trade-offs.

Roughly half of the outcome evaluations produced significant differences across the choice intention groups. Most of these differences reflected variations in the response degree rather than direction. Thus, the pattern of results supported the expectancy-value theory notion that evaluations of outcomes are generally the same (i.e., are either positive or negative) regardless of how they are perceived to be attained (Ajzen & Fishbein, 1980). In terms of motivations to comply with referent groups, choosers of each method on the average (a) wanted to comply with what they believed most

doctors and their boyfriends wanted them to do, (b) were neutral with respect to their parents, and (c) did not want to comply with what they believed their friends and people in their religion wanted them to do.

The prediction and explanation of choice intentions based on the predictive decision factor model. The common factor indices, derived for the predictive decision factor model, were also examined within the context of choice intentions. A discriminant analysis predicting choice among five contraceptives, in which the fifteen common factor indices (three scales for each method) served as predictors, was highly significant. Only the indices representing use advantages and social approval uniquely contributed to the discimination. These results closely paralleled those obtained in the corresponding analyses of absolute judgments of intentions.

Four significant discriminant functions were derived, accounting for similar proportions of the variance in choice as obtained in the Fishbein-Ajzen model analyses. The pattern of discriminant function coefficients revealed that each function primarily contrasted different contraceptives on the use advantages and social approval indices. These functions were not strictly similar to those obtained on the basis of the Fishbein-Ajzen model components; however, some consistencies were evident. In all discriminant analyses, the pill was compared to one or more alternative methods on the first function. In addition, barrier methods (i.e., the diaphragm and condom) and "natural" forms of birth control (i.e., withdrawal and rhythm) were

sometimes "grouped" for comparisons to other contraceptives or were contrasted against one another.

Classification analyses revealed that the predictive decision factor model was slightly less successful overall in discriminating choice than were the direct and indirect Fishbein-Ajzen model components. The percentage of all cases correctly classified was 72.4% for the direct Fishbein-Ajzen components model, 70.7% for the indirect Fishbein-Ajzen components model, and 68.2% for the predictive decision factor model. Although these percentages may be statistically different from each other given the sample size, these differences are not meaningful. As was found with the expectancy-value model analyses, the common factors model was best able to discriminate pill choosers and least successful in predicting choice of withdrawal. The majority of misclassifications fell into the pill and condom categories. These errors may have been partly due to the prior probabilities classification criterion utilized, which adjusted the prediction of group membership according to the proportion of cases in the sample actually choosing each method.

A series of one-way ANOVAs were performed to examine systematic differences among the choice intention groups on the common factor indices. It was found that choosers of each contraceptive were the most likely to believe their method of preference was characterized by use advantages (i.e., effectiveness, ease of use, and "naturalness") and social approval. No other significant differences were obtained. Perceived use advantages and social approval apparently outweigh any

negative consequences attributed to methods of preference. These results closely parallel those obtained with the Fishbein-Ajzen model.

Generalizability of Results

An issue of concern in this study was the generalizability of results between the college and clinic samples and, from these samples to other populations. It was concluded that the results based on the two samples were generally similar in terms of absolute judgments of intention. Recall that analyses of choice intention were not performed on the clinic sample due to a lack of response variability across the choice intention categories. Thus, no empirical statement can be made regarding the generalizability of results between the two samples in this context. However, given the similarity of findings for parallel analyses of absolute judgments of intention, it could be expected that the choice intention results obtained with the college sample might also have been obtained in the clinic sample.

The similarity of findings obtained across the two samples was somewhat surprising. There were a number of reasons why it might have been expected that greater inconsistency between the responses of the college and clinic samples would be found. First, the list of salient behavioral beliefs and normative referent groups, utilized to develop the final survey, were elicited only from college students at three universities during the preliminary interview phase of the project. If the clinic sample was indeed from a different population, they may have had a different set of salient beliefs or referent

groups which may not have been tapped by the survey items utilized. Demographic differences (see below) indicate that the two samples appear to come from somewhat different populations. The fact that similar patterns of results were obtained across the two samples attests to the apparent universality of the survey content to relatively diverse groups of young women.

Another reason why it was expected that greater inconsistency in responses from the two groups of respondents might be obtained was the fact that different procedures were utilized to collect data from each sample. College women from two universities completed the final survey in groups on a self-administered basis, and received experimental credits toward course grades for their participation. In contrast, family planning clinic respondents were individually interviewed on a strictly voluntary basis; the investigator guided respondents through the survey, reading all instructions and items aloud, while they recorded their responses on a separate survey form. The interviewing situation (during clinic hours with little or no privacy, and in some cases, several interruptions) was less than conducive to obtaining reliable responses. Yet, the internal consistency levels of the various Fishbein-Ajzen model components indicated that the reliability of responses was generally high and similar across the two samples. From a procedural standpoint, future investigators conducting expectancy-value theory research can utilize either a self-administered survey or interview schedule and be relatively confident that the results obtained would be similar.

Demographic and other attitudinal characteristics distinguished the college sample from the clinic respondents, which lead to the conclusion that the two samples may have come from different populations and, thus, may have been expected to yield non-comparable results. On the average, clinic respondents were older than women in the college sample (mean ages = 20.85 and 19.07, respectively; $p < .001$). All clinic respondents were Black, compared to only one-fifth (19.0%) of the college sample. Additionally, the clinic sample was significantly lower on the socio-economic status index than the college sample (means = -0.66 and -0.03, respectively; $p < .001$). The majority of college respondents were Catholic (63.2%) and about one-fourth (27.6%) were of various Protestant denominations; in contrast, almost three-fourths (72.5%) of the clinic sample were Protestant, primarily Baptist, and only 17.5% were Catholic. However, both groups were equally religious (mean ratings on the strength of religious belief measure were 4.54 for the college sample and 4.25 for the clinic respondents; $p < .26$). Lastly, in terms of education, almost all college respondents were feshmen or sophomores (65.6% and 24.5%, respectively). Slightly more than one-fourth (27.5%) of the clinic sample were in college at the time of the survey and were evenly distributed across the four grade levels from freshman to senior. An additional 35% had attended college in the past, while 37.5% had never gone to college.

Differences across the two samples in terms of sexual and contraceptive experience were also evident. Two-fifths (43.2%) of the

college sample had never had sexual intercourse, while all clinic respondents had had such experience. Among the nonvirgins, clinic respondents on the average had begun having sexual intercourse at a slightly younger age than the college respondents (mean age at first intercourse = 16.25 and 16.91, respectively; $p < .05$). Moreover, the former group had been sexually active for a longer period of time than the latter group (mean number of years since first intercourse = 4.60 and 2.39, respectively; $p < .001$).

Patterns of contraceptive experience, in terms of ever versus never use, across the two subsamples of nonvirgins were somewhat different. Chi-square analyses were utilized to examine these differences. All but one clinic respondent had used the pill in comparison to roughly half (46.5%) of the college nonvirgins ($p < .001$). It is not surprising that almost all clinic respondents had used the pill sometime, given that family planning clinics, as a rule, tend to encourage the use of medically-prescribed methods, particularly oral contraceptives (Chilman, 1980). A statistically significant, but nonmeaningful difference was found between the two samples for ever use of the IUD. Only five clinic respondents versus three college respondents had had such experience. Likewise, few respondents in either sample had ever used the diaphragm (7.1% of the college sample and 15.0% of the clinic respondents; $p < .21$). Comparable proportions of both samples had used the condom (57.4% and 67.5%, respectively; $p < .33$). Larger differences were found for ever use of withdrawal and rhythm. More college respondents reported ever using both methods

than the clinic respondents (56.1% versus 30.0%, respectively for withdrawal, and 36.1% versus 12.5%, respectively for rhythm; both chi-square analyses were significant at the .01 level or better).

In analyses of variables external to the Fishbein-Ajzen model, including those described above, it was found that most generally did not appreciably augment the prediction of intentions in either sample beyond the variance explained by the direct model components. The only consistent exception to this finding was with respect to the influence of sexual experience and previous use on the intentions of the college sample. But more importantly, both samples held similar patterns of beliefs, evaluations, and motivations to comply, consistent with their intentions to use the methods of contraception under investigation. Thus, comparability of results between the two samples was evident.

It is of interest to note the differences across the clinic, college virgin and college nonvirgin subsamples on measures of absolute judgments of intention. One-way ANOVAs and Scheffe's a posteriori procedure were utilized to examine these differences. In general, the pattern of results showed some discrepancies in the degree of their intentions, but for the most part, the groups did not hold opposing views. Clinic respondents were far more likely to intend to use the pill than either the college virgins or nonvirgins (mean intentions to use the pill = 5.93, 2.71, and 2.07, respectively; the Scheffe a posteriori test indicated the clinic sample significantly differed from the other two groups at the .05 level). Again, this

result is not surprising in light of the fact that family planning clinics generally promote pill use for their clients (Chilman, 1980). In contrast, intentions to use the IUD and diaphragm were not statistically different among the clinic, college virgin and college nonvirgin subgroups (mean intentions to use the IUD = -4.30, -4.71, and -5.51, respectively; mean intentions to use the diaphragm = -1.50, -2.34, and -2.62, respectively). College virgins and nonvirgins had favorable intentions to use the condom, whereas the clinic respondents on the average were slightly unlikely to do so (mean intentions to use the condom = 2.43, 1.03, and-0.45, respectively; college virgins significantly differed from the clinic respondents at the .05 level). On the average, all three groups did not intend to use withdrawal; however, the clinic respondents and college virgins were significantly more unlikely to do so than were the college nonvirgins (mean intentions to use withdrawal = -6.90, -4.76, and -2.04, respectively; $p < .05$). Similarly, each sample was unlikely to use rhythm; in this case, the clinic respondents significantly differed from both the college nonvirgins and virgins (mean intentions to use rhythm = -6.50, -2.44, and -1.30, respectively; $p < .05$).

In general, it was found that: (a) all groups held positive intentions to use the pill, (b) college respondents were favorable toward using the condom, whereas clinic respondents were slightly unlikely to do so, and (c) each group was unlikely to intend to use the IUD, diaphragm, withdrawal, or rhythm methods. Thus, overall the groups tended to differ only in the degree, rather than direction,

of their intentions.

To address the issue of generalizability from the clinic sample to the clinic population, available statistics regarding 1980 patient characteristics for the clinic as a whole were compared to similar data on the clinic sample. Age and race comparisons indicated the clinic sample was representative of the population. Mean age was not available; however, 62% of the clients served in 1980 were between 15 and 24 years of age. The respondents in this study were between the ages of 17 and 24. Almost all clients in this age group (94%), as well as the total clinic sample, were Black. However, the clinic sample was more educated overall than the majority of the 1980 client population. Three-fourths (77%) of the client population between 15 and 24 years of age had attended high school (grades 9 through 12); only 20% had gone to college. In contrast, almost two-thirds (62.5%) of the clients who participated in this study were in college at the time of the survey or had received some college education in the past. Although data regarding the educational attainment of the twenty "refusals" were not available, women with college backgrounds were probably more likely to volunteer to participate in this study than those without such experience. Thus, in terms of education, the clinic sample was unrepresentative of the 1980 client population in the same age group. The fact that two-thirds of the clinic sample had some college experience may, in part, explain the similarity of results obtained between the college and clinic samples. Overall, the generalizability of the results should be restricted to more

educated young women.

Policy Implications and Directions for Future Research

Out-of-wedlock pregnancies and births are still significant problems in the United States, as noted in the INTRODUCTION of this manuscript. Not only do problem pregnancies, if carried to term, frequently result in a draining of financial resources on the federal level, but young women who have illegitimate children often suffer from lost educational opportunities and poorer job prospects among other problems (see Moore & Burt, 1982 for a review of this literature). Unwed mothers, compared to married mothers, are less likely to receive adequate prenatal care, which may contribute to the higher incidence of premature births and the concomitant infant health problems that the former group experiences. Out-of-wedlock children are also more likely to be abused (Alan Guttmacher Institute, 1981; Cvetkovich et al., 1975; Moore & Burt, 1982).

Undoubtedly, premarital pregnancies are due at least in part to "poor" contraceptive choice and/or inconsistent or incorrect use. Government funding for contraceptive research, other than the development of new technologies, has frequently been provided for demographic and descriptive studies of users and nonusers. These studies can at most tell us which subgroups of unmarried women are ineffective contraceptors, but not why.

Funding should instead be funneled into programs of research examining contraceptive decision-making on the basis of perceived

advantages and disadvantages of using available methods. The utility and predictive power of this approach has been demonstrated in this study. Such research would not only indicate strategies for improving current contraceptive practices, but would point out the features to incorporate into or avoid in the development of new methods of birth control. For example, the current trend toward the development of subcutaneous hormonal implants for women (Bizimungu, Note 3) may meet the desire for methods which are effective and "easy to use" but, still may be viewed unfavorably overall, given the rising concern in recent years with the side effects associated with oral contraceptives. Research in this area is needed to determine the acceptability of such new technologies within a decision-making theoretical framework.

This study found that, no matter which contraceptive was preferred, women appeared to favor those methods perceived to be (a) effective, easy to use, and easy to get, (b) acceptable to salient referent groups, (c) unassociated with medically-related problems such as major side effects, birth defects, and so forth, and (d) unlikely to have immediate adverse effects on having sexual intercourse. Thus, service delivery agencies, wishing to promote the use of a particular contraceptive, or conversely, to discourage the use of some methods, should develop marketing or advertising strategies consistent with these findings. Apparently, current educational and marketing efforts are not enough or are not reaching those in the most need.

What may be neglected in many marketing efforts is a consideration of normative factors. Evidence from this study indicates that

the approval (or disapproval) of doctors and sexual partners should be emphasized to promote (or discourage) the use of various contraceptives. In order to accurately represent the perceptions of sexual partners, more research needs to be done with males, not only because they influence women's contraceptive choices, but because their approval/disapproval undoubtedly impacts on the consistency, and hence, effectiveness with which contraceptives are used.

Demographic studies (Dept. of Health and Human Services, 1980; Zelnik & Kantner, 1980) indicate that teenagers and college-age women should be the main targets for contraceptive research, given the high incidence of premarital pregnancies and illegitimate births found in these groups. Family planning clinic clients and university students are readily available populations for research but studies focusing on other groups of young unmarried women are needed (Chilman, 1980). Women attending family planning clinics may not be the ones experiencing the majority of "problem pregnancies." Likewise, investigations of more educated samples, such as in the present study, are limited in terms of generalizability. However, research on educated groups is useful in the sense that, from these efforts, researchers and policy-makers can perhaps get a notion of the "upper-limit" to be expected for optimal decision-making,[10] given that students in university

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[10]By "optimal" it is meant that people seek out accurate information and thoroughly examine the perceived pros and cons associated with various behavioral alternatives, prior to choosing a course of action best suited to their goals and objectives (Janis & Mann, 1977). Such an optimal problem-solving strategy may lead to the choice of the rhythm method or the pill for any given individual; thus, the investigator does <u>not</u> presume to suggest what, in fact, is optimal as a general prescription.

settings are trained to improve their problem-solving skills in many areas; such skill development would hopefully carry over to personal decisions such as contraceptive choice. This assumption, in and of itself, is worthy of research.

In an extensive review of the literature, Chilman (1980) concluded that the antecedent to contraceptive decisions, that is, the decision to become sexually active itself, deserves continued research. Chilman and others (Cvetkovich et al., 1975; Juhasz & Sonnenshein-Schneider, 1980) have suggested that "lack of acceptance of one's sexuality" plays a major role in unplanned intercourse and nonuse of contraceptives. This study touched on the issue of future expectations regarding unplanned intercourse; however, the measures utilized did not contribute to the prediction of contraceptive intentions. This finding may be due in part to an inadequate operationalization of the concept.

Longitudinal, in-depth research is probably the best technique for addressing many of the gaps in knowledge about sexual and contraceptive decision-making noted above. Such studies would involve repeated data collection, in the form of extensive interviews and/or surveys, with a group of young males and females over a period of several years. An additional research component could include process-tracing techniques (Payne et al., 1978; Svenson, 1979) aimed at assessing the decision process itself; such data would provide information regarding the decision strategies or rules which frequently lead to specific sexual or contraceptive choices and, with a repeated-measures

design, changes in the decision process over time.

Several topics deserve emphasis in systematic longitudinal investigations of sexual and contraceptive decisions. These include: (a) changes in sexual experience (e.g., virgins versus new initiates versus persons who have been sexually active for two or more years) and the concomitant factors which influence decisions regarding such behavior, (b) the phenomena of "contraceptive switching" as a result of changes in contraceptive beliefs and evaluations, as well as the influence of normative reference groups, specifically peers and sexual partners, on behavior, and (c) contraceptive nonuse or inconsistent usage patterns among the sexually active due to their behavioral and normative beliefs concerning sexuality and birth control.

Longitudinal research, tracing the sexual and contraceptive decisions of young people from puberty to early adulthood (e.g., ages 12 to 21), could provide valuable policy-relevant implications concerning how to enhance problem-solving skills. Sex education evaluators (Kirby, Alter, & Scales, 1979) have recently recognized the importance of such training and have begun to assess the success of programs aimed at improving communication and decision-making skills in public schools and private institutions. The assumption is that better problem-solving skills will lead to reduced incidents of pregnancy and illegitimate births. Longitudinal field experiments, assessing skills development training programs, are also needed to

provide evidence in support of this assumption.[11]

One of the limitations of the present study and other correlational research as a whole is the general lack of evidence regarding the causal relationships between predictor and criterion variables. In expectancy-value theory, for example, the formation of beliefs presumably precedes the formation of intentions. Thus, a specific causal flow is implied. Yet, research examining these relationships generally obtains measures of all model components at the same point in time. Such research designs cannot provide a test of the proposed causal links among different expectancy-value theory components.

Field experiments, utilizing a repeated-measures design, can be employed to examine hypothesized causal relationships in psychological theories of behavior. In the case of sexual or contraceptive decision-making, it may be difficult to pinpoint a time in which a group of potential respondents would not have some prior exposure to these areas, in order to have a "pure" testing situation. In lieu of such an uncontaminated circumstance, one key element for field experiments would involve devising a manipulation aimed at changing certain theoretical components and then examining the hypothesized concomitant changes in other model components.

A field experiment which would provide a theoretical test of the

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[11]Such a study is currently being conducted by the investigator and other personnel at the Center for Health Services and Policy Research of Northwestern University.

expectancy-value model, for example, might employ the following approach. A program could be devised to create or change certain behavioral and normative beliefs with respect to specific contraceptive methods. Measures of all model components would be obtained, both before and after implementation of the program from randomly selected experimental and control groups. The collection of posttest data should occur immediately after program completion and at regular intervals thereafter to assess the long-term impact of the program on various model components. If randomization of respondents to treatment and control groups is unfeasible, potential contaminating factors should be controlled or at least measured so that analyses of competing explanations for obtained results can be performed. In general, data analyses would reveal whether changes in beliefs resulted in changes in intentions. The relationship between stated intentions and subsequent behavior could also be assessed in this type of study.

Field experiments such as the one described above would not only provide a theoretical test of the Fishbein-Ajzen model and/or other theories of decision-making, but would have direct policy implications for service delivery and government funding agencies. Once the reliability and validity of specific theoretical models were established through field experiments, various marketing strategies could be tested in follow-up studies designed to determine which techniques are the most efficient and reliable methods for producing specific changes in sexual and contraceptive behaviors. However, it should be noted that promoting specific behaviors may prove to be

controversial and, more importantly, a restriction on freedom of choice.

Policy makers, service delivery agencies, and researchers can better serve individuals by developing strategies to enhance decision-making skills. As previously noted, Janis and Mann (1977) suggest that people should be trained to seek accurate information and thoroughly examine the perceived pros and cons associated with different behavioral alternatives prior to choosing a course of action best suited to their goals. The current study has provided evidence regarding several important judgmental dimensions, in terms of both behavioral outcomes and normative factors, underlying the contraceptive choices of young, unmarried women. These results can be utilized to aid individuals in carefully examining their own preferences for different forms of birth control. The responsibility of researchers and providers of care should <u>not</u> be to tell individuals which contraceptive to use, but rather to help them know how to decide so they will be satisfied with and benefit from their choices.

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APPENDIX A

I# _____

PRELIMINARY INTERVIEW

As you read on the consent form, this is a study concerning birth control and how different social and psychological factors affect contraceptive behavior.

Let me begin by asking you a few simple questions for background information.

1. What is your age? _____

2. What grade or year of college are you currently enrolled in?

_____ freshman
_____ sophomore
_____ junior
_____ senior
_____ graduate student (degree/yr. _____)
_____ not in school now

3. Are you currently living. . .

___ with one or both of your parents (Which: _____),
___ with other relatives (Who: _____),
___ in a university dormitory,
___ in an apt/house with roommates,
___ in an apt/house with a boyfriend, or
___ in an apt/house alone?
___ other: _____

4. Are you currently. . .

___ married and living with your husband,
___ separated,
___ divorced,
___ widowed, or
___ never been married? (GO TO Q5)

4a. How many times have you been married? _____#

5. What is your religion?

___ Catholic
___ Protestant (What denomination: _____)
___ Jewish
___ atheist/agnostic/none
___ other: _____

6. Do you have a job for which you get paid?

___ yes
___ no
___ don't know
___ refused

7. Please look at this card and tell me which category your income for 1980 before deductions from all sources (including jobs, gifts, parents) fell into.

_____ $5,000 or less (1)
_____ $5,001 to $10,000 (2)
_____ $10,001 to $15,000 (3)
_____ $15,001 to $20,000 (4)
_____ $20,001 to $30,000 (5)
_____ $30,001 to $50,000 (6)
_____ $50,001 or more (7)
} GO TO Q8
_____ don't know (GO TO Q7a)
_____ refused (GO TO Q7a)

7a. Would you say it was more or less than $15,000?

____ more
____ less
____ don't know
____ refused

8. PARTICIPANT'S ETHNIC GROUP:

____ Black
____ White
____ Latino
____ Other: _____
____ Unknown

9. School or Clinic:

____ Loyola
____ Roosevelt
____ UICC

Now we can begin on some of the questions concerning contraception. You may find that some of the questions are very personal. These questions are being asked from a purely scientific and academic perspective. Obviously, there are no right or wrong answers and there is no need for you to feel embarrassed about any answer you might give.

I want to remind you of the conditions agreed to on the consent form that you signed. Remember that all the information you provide will be kept strictly confidential and that your name will not in any way be identified with the responses you give.

10. First of all, what kinds of birth control do women your age whom you know usually use? (NUMBER RESPONSES)

___ pill
___ IUD
___ diaphragm
___ withdrawal
___ rhythm method
___ foam, cream, jelly
___ douche
___ none
___ abstinence
___ other: _____
___ don't know

11. What are the 3 most important advantages or positive benefits that would lead you to use a particular contraceptive?

a. _____

b. _____

c. _____

12. What are the 3 most important disadvantages or negative consequences that would lead you not to use a particular contraceptive?

a. _____

b. _____

c. _____

13. Describe for me how the _____ works.

PILL: _____

IUD: _____

DIAPHRAGM: _____

CONDOM: _____

(CONTINUED)

13. Describe for me how the _____ works.

WITHDRAWAL: _____

_____

_____

_____

_____

RHYTHM: _____

_____

_____

_____

_____

14. What do you believe are the advantages or positive benefits to using:

PILL: _____

_____

_____

_____

_____

IUD: _____

_____

_____

_____

_____

DIAPHRAGM: _____

_____

_____

_____

_____

CONDOM: _____

_____

_____

_____

_____

(CONTINUED)

14. What do you believe are the advantages or positive benefits to using:

WITHDRAWAL: _____

_____

_____

_____

_____

RHYTHM: _____

_____

_____

_____

_____

NO METHOD: _____

_____

_____

_____

_____

15. What do you believe are the disadvantages or negative consequences of using:

PILL: _____

_____

_____

_____

_____

IUD: _____

_____

_____

_____

_____

DIAPHRAGM: _____

_____

_____

_____

_____

CONDOM: _____

_____

_____

_____

_____

(CONTINUED)

15. What do you believe are the disadvantages or negative consequences of using:

WITHDRAWAL: _____

_____

_____

_____

_____

RHYTHM: _____

_____

_____

_____

_____

NO METHOD: _____

_____

_____

_____

_____

16. Are there any individuals or groups who would approve of your using:

PILL: _____

_____

_____

_____

_____

_____

IUD: _____

_____

_____

_____

_____

_____

DIAPHRAGM: _____

_____

_____

_____

_____

_____

CONDOM: _____

_____

_____

_____

_____

_____

(CONTINUED)

16. Are there any individuals or groups who would approve of your using:

WITHDRAWAL: _____

_____

_____

_____

_____

RHYTHM: _____

_____

_____

_____

_____

NO METHOD: _____

_____

_____

_____

_____

17. Are there any individuals or groups who would disapprove of your using:

PILL: _____

_____

_____

_____

_____

IUD: _____

_____

_____

_____

_____

DIAPHRAGM: _____

_____

_____

_____

_____

CONDOM: _____

_____

_____

_____

_____

(CONTINUED)

17. Are there any individuals or groups who would disapprove of your using:

WITHDRAWAL: _____

_____

_____

_____

_____

RHYTHM: _____

_____

_____

_____

_____

NO METHOD: _____

_____

_____

_____

18. Are there any other individuals or groups who come to mind when you think about using a contraceptive? Who?

_____

_____

_____

_____

_____

19. Think about the people you mentioned who would disapprove of your using various methods. Would they disapprove because of something about the method itself or because using it would mean you were sexually active?

	Person Named	Something About Method	Means Sexually Active
PILL:			
1.			
2.			
3.			
4.			
IUD:			
1.			
2.			
3.			
4.			
DIAPHRAGM:			
1.			
2.			
3.			
4.			
CONDOM:			
1.			
2.			
3.			
4.			

(CONTINUED)

19.	Person Named	Something About Method	Means Sexually Active

WITHDRAWAL:

1. _____
2. _____
3. _____
4. _____

RHYTHM:

1. _____
2. _____
3. _____
4. _____

NO METHOD:

1. _____
2. _____
3. _____
4. _____

20. Do you think there are any particular obstacles or difficulties in <u>obtaining</u> any of the methods we just discussed? How about with the:

PILL: _____

IUD: _____

DIAPHRAGM: _____

CONDOM: _____

21. How would you feel about getting a medical examination in order to get certain methods of birth control? (PROBE: WHAT HAS BEEN YOUR EXPERIENCE WITH THIS?)

_____

_____

_____

_____

_____

a. Would distance or transportation to a doctor or clinic be a problem?

_____yes _____no

COMMENTS: _____

_____

_____

b. Would having to get a medical examination keep you from using certain methods?

_____yes _____no

COMMENTS: _____

_____

_____

c. What about any problems getting an appointment or waiting to see the doctor? How would you or do you feel about that?

_____

_____

d. Would you feel differently about going to a private doctor versus going to a clinic for a medical examination?

_____yes _____no

COMMENTS: _____

_____

22. How would you feel about having to go to a private doctor, clinic, drugstore, or pharmacy to obtain birth control supplies? (PROBE: WHAT HAS BEEN YOUR EXPERIENCE WITH THIS?)

_____

_____

_____

_____

_____

a. Would distance or transportation be a problem?

_____yes _____no

COMMENTS: _____

_____

_____

b. Would having to go to a private doctor, clinic, drugstore, or pharmacy for supplies keep you from using certain methods of birth control?

_____yes _____no

COMMENTS: _____

_____

_____

c. Would you feel differently about going to a private doctor versus a clinic versus a drugstore versus a pharmacy for supplies?

_____yes _____no

COMMENTS: _____

_____

_____

_____

Now I'm going to ask you some more specific questions about your sexual history and personal experience with contraception.

Again, let me remind you that there is no need to feel any embarrassment about any answer you might give. Also, all the information you provide will be kept confidential and your name will not in any way be identified with the responses you give.

23. Have you ever had sexual intercourse?

_____yes (GO TO NEXT PAGE) _____don't know

_____no _____refused

24. If you were going to have sexual intercourse, which method of birth control, if any, would you or your partner be most likely to use? (NUMBER RESPONSES)

_____pill
_____IUD
_____diaphragm
_____condom
_____withdrawal
_____rhythm method
_____foam, cream, jelly
_____douche

SKIP TO Q26

_____none
_____abstinence
_____other: _____
_____don't know
_____not sure what's available
_____refused

25. Why would you (or your partner) use this? (PROBE: WOULD ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR CHOICE?) _____

_____

_____

_____

_____

26. How much money would you be willing to spend on a yearly basis for a contraceptive, including medical exams and supplies if necessary?

$ _____ ____ don't know ____ refused

27. Is this amount of money available to you for such use?

_____yes _____no

_____maybe _____don't know

_____refused

STOP INTERVIEW

28. How old were you the first time you had sexual intercourse?

_____age _____don't know _____refused

29. Have you had sexual intercourse within the past six months?

_____yes _____don't know
_____no _____refused

30. Are you or your partner currently using any form of birth control?

_____yes _____don't know } GO TO Q39, page 22
_____no (GO TO Q39, page 22) _____ refused }

31. What method are you or your partner using right now?

_____pill _____rhythm method
_____IUD _____foam, cream, jelly
_____diaphragm _____douche
_____condom _____none
_____withdrawal _____abstinence
_____other: _____

32. Where did you get this method? Was it at a . . .

_____hospital or hospital clinic,
_____other clinic,
_____private physician,
_____drug store or pharmacy, or
_____did your partner supply it?
_____other: _____

33. Why do you (or your partner) use this? (PROBE: DID ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR CHOICE?) _____

_____

_____

_____

34. Did you (or your partner) use any other method just before this one?

_____yes _____don't know } GO TO Q51, last page
_____no (GO TO Q51, last page) _____refused }

35. What other method did you (or your partner) use just before this one?

_____pill	_____rhythm method
_____IUD	_____foam, cream, jelly
_____diaphragm	_____douche
_____condom	_____none
_____withdrawal	_____abstinence
	_____other: _____

36. Where did you get this method? Was it at a . . .

_____hospital or hospital clinic,
_____other clinic,
_____private physician,
_____drug store or pharmacy, or
_____did your partner supply it?
_____other: _____

37. Why did you (or your partner) use this method? (PROBE: DID ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR CHOICE?) _____

_____

_____

_____

38. Why did you (or your partner) stop using this method? (PROBE: DID ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR DECISION TO STOP USING THIS METHOD?) _____

_____

_____

_____

_____

(GO TO Q51, LAST PAGE)

39. Have you or your partner used any form of birth control within the past 6 months?

_____yes (SKIP TO Q42)
_____no
_____don't know
_____refused

40. Have you or your partner ever used any form of birth control?

_____yes (SKIP TO Q42)
_____no
_____don't know
_____refused

41. Why have you and your partner chosen not to use any method of birth control?

_____

_____

_____

_____

(GO TO Q51, LAST PAGE)

42. What is the most recent method you or your partner have used?

_____pill
_____IUD
_____diaphragm
_____condom
_____withdrawal
_____rhythm method
_____foam, cream, jelly
_____douche
_____none
_____abstinence
_____other: _____

43. Where did you get this method? Was it at a . . .
_____hospital or hospital clinic,
_____other clinic,
_____drug store or pharmacy, or
_____did your partner supply it?
_____other: _____

44. Why did you (or your partner) use this method? (PROBE: DID ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR CHOICE?) _____

_____

_____

_____

_____

45. Why did you (or your partner) stop using this method? (PROBE: DID ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR DECISION TO STOP USING THIS METHOD?)

_____

_____

_____

_____

46. Did you or your partner use any other method just before this one?

_____yes
_____no (GO TO Q51, LAST PAGE)
_____don't know } GO TO Q51, LAST PAGE
_____refused }

47. What other method did you (or your partner) use just before this one?

_____pill
_____IUD
_____diaphragm
_____condom
_____withdrawal
_____rhythm method
_____foam, cream, jelly
_____douche
_____none
_____abstinence
_____other: _____

48. Where did you get this method? Was it at a . . .

_____hospital or hospital clinic,
_____other clinic,
_____private physician,
_____drug store or pharmacy, or
_____did your partner supply it?
_____other: _____

49. Why did you (or your partner) use this method? (PROBE: DID ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR CHOICE?) _____

_____

_____

_____

_____

50. Why did you (or your partner) stop using this method? (PROBE: DID ANYONE YOU KNOW HAVE AN INFLUENCE ON YOUR DECISION TO STOP USING THIS METHOD?)

_____

_____

_____

_____

_____

51. How much money would you be willing to spend on a yearly basis for a contraceptive, including medical exams and supplies if necessary?

$ _____ _____don't know _____refused

52. Is this amount of money available to you for such use?

_____yes _____no
_____maybe _____don't know
_____refused

53. How much money have you spent for a contraceptive within a typical year?

$ _____ _____don't know _____refused

_____NA, never bought a contraceptive

54. What, if any, other methods of birth control have you or your partner used?

_____

_____

_____

_____

THANK YOU VERY MUCH!

APPENDIX B

INSTRUCTIONS

In this section you are asked to rate the overall "goodness" or "badness" of different outcomes which may be associated with using some methods of birth control. To rate these outcomes you will use a rating scale with 7 places in which you are to make a check mark in the place on the scale which best describes your opinion. For example, if you were asked to rate the statement "The weather in Portland is cold all year round" on such a scale, it would look like this:

The weather in Portland is cold all year round.

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

Suppose you think that it is quite good that the weather in Portland is cold all year round. Then you would place your mark like this:

good_____:__X__:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

Suppose you think it is neither good nor bad that the weather in Portland is cold all year round. Then you would mark the scale like this:

good_____:_____:_____:__X__:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

Suppose you think that it is extremely bad that the weather in Portland is cold all year round. Then you would mark the scale like this:

good_____:_____:_____:_____:_____:_____:__X__bad
extremely quite slightly neither slightly quite extremely

In making your ratings, please remember the following points:

a. Place your marks in the middle of spaces, not on the boundaries:

_____:_____:__X__:_____:_____:_____:_____:____X_____
this not this

b. Be sure you answer all questions--please do not skip any.

c. Never put more than one check mark on each scale.

d. Do not ask anyone else to help you fill out the survey. I am only interested in your individual opinions.

1. FOR ME, USING A METHOD WHICH PREVENTS PREGNANCY EFFECTIVELY OR RELIABLY WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

2. USING A METHOD WHICH WOULD CAUSE MAJOR SIDE EFFECTS OR HEALTH HAZARDS FOR ME, (OTHER THAN POSSIBLE PREGNANCY) WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

3. USING A METHOD WHICH WOULD CAUSE MINOR SIDE EFFECTS FOR ME (OTHER THAN POSSIBLE PREGNANCY) WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

4. USING A METHOD WHICH WOULD CAUSE BIRTH DEFECTS OR HARM TO CHILDREN I MAY HAVE WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

5. USING A METHOD WHICH WOULD BE EASY FOR ME TO USE CORRECTLY WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

6. USING A METHOD WHICH WOULD REQUIRE A LOT OF EFFORT OR MOTIVATION FOR ME TO USE WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

7. USING A METHOD WHICH HELPS PREVENT OR CLEAR UP MY HORMONAL OR MENSTRUAL CYCLE PROBLEMS WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

8. USING A METHOD WHICH I THINK IS "NATURAL" WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

9. USING A METHOD WHICH PUTS AN INSERTED OBJECT OR BARRIER DEVICE IN MY BODY WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

10. USING A METHOD WHICH PUTS A CHEMICAL OR DRUG IN MY BODY WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

11. USING A METHOD WHICH IS MORALLY ACCEPTABLE TO ME WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

12. USING A METHOD IN WHICH I WOULD HAVE TO PLAN TO HAVE IT "ON HAND" AT THE TIME OF INTERCOURSE WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

13. USING A METHOD WHICH WOULD HELP PREVENT ME FROM GETTING VENEREAL DISEASE (DISEASES WHICH ARE SPREAD THROUGH SEXUAL CONTACT) WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

14. USING A METHOD WHICH WOULD BE EASY FOR ME TO HIDE FROM OTHERS WHO I WOULD NOT WANT TO KNOW ABOUT IT WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

15. USING A METHOD WHICH INTERRUPTS ON-GOING SEXUAL ACTIVITY (THAT IS, MY PARTNER AND I WOULD HAVE TO DELAY OR STOP IN THE MIDDLE OF OUR SEXUAL ACTIVITY TO USE IT) WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

16. USING A METHOD WHICH REDUCES SPONTANEITY (THAT IS, SOMETIMES MY PARTNER AND I WOULD HAVE TO WAIT TO HAVE INTERCOURSE) WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

17. USING A METHOD WHICH WOULD REDUCE SEXUAL PLEASURE FOR MY SEXUAL PARTNER WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

18. USING A METHOD WHICH WOULD REDUCE MY SEXUAL PLEASURE WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

19. FOR ME, USING A METHOD WHICH IS MESSY WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

20. USING A METHOD IN WHICH MY SEXUAL PARTNER IS THE ONE WHO IS RESPONSIBLE FOR BIRTH CONTROL WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

21. USING A METHOD WHICH IS EASY FOR ME TO GET WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

22. USING A METHOD WHICH REQUIRES THAT I SEE A DOCTOR TO GET IT WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

23. USING A METHOD WHICH WOULD COST ME A LOT OF MONEY WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

24. USING A METHOD WHICH REQUIRES THAT I GO TO A DRUGSTORE, PHARMACY OR CLINIC TO GET BIRTH CONTROL SUPPLIES WOULD BE

good_____ : _____ : _____ : _____ : _____ : _____ : _____bad
extremely quite slightly neither slightly quite extremely

INSTRUCTIONS

In this section you are asked a series of questions concerning how likely it is that certain outcomes are associated with using six different methods of birth control. To rate the association between each outcome and each method of birth control you will use a rating scale with 7 places in which you are to make a check mark in the place on the scale which best describes your opinion. For example, if you were asked to rate the statement "The weather in Portland is cold all year round" on such a scale, it would look like this.

The weather in Portland is cold all year round.

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

For example, if you were asked to rate how likely it is that the weather in Portland is cold all year round, and you think it is extremely likely that the statement is true, then you would place your mark like this:

The weather in Portland is cold all year round.

likely__X__:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

Suppose you think it is neither likely nor unlikely or is about a 50/50 chance that the weather in Portland is cold all year round, then you would mark the scale like this:

likely_____:_____:_____:__X__:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

Suppose you think it is slightly unlikely that the weather in Portland is cold all year round, then you would mark the scale like this:

likely_____:_____:_____:_____:__X__:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

In making your ratings, please remember the following points:

a. Place your marks in the middle of spaces, not on the boundaries:

____:_X_:____:____:____:____:____:___X____
this not this

b. Be sure you answer all questions--please do not skip any.

c. Never put more than one check mark on each scale.

d. Do not ask anyone else to help you fill out the survey. I am only interested in your individual opinions.

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

1. IF I USED ____, I WOULD BE USING A METHOD OF BIRTH CONTROL WHICH PREVENTS PREGNANCY EFFECTIVELY OR RELIABLY.

   a. the IUD (also called the loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

2. IF I USED _____, I WOULD BE USING A METHOD OF BIRTH CONTROL WHICH WOULD CAUSE MAJOR SIDE EFFECTS OR HEALTH HAZARDS FOR ME (OTHER THAN POSSIBLE PREGNANCY).

   a. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. RHYTHM (also called safe period or safe time of the month

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the IUD (also called the loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

3. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD CAUSE MINOR SIDE EFFECTS FOR ME (OTHER THAN POSSIBLE PREGNANCY).

a. the CONDOM (also called rubbers)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

b. RHYTHM (also called safe period or safe time of the month)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

c. the DIAPHRAGM (also called cup, disk or pouch)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

d. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

e. the PILL

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

f. the IUD (also called the loop, shield or coil)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

4. IF I USED ___, I WOULD BE USING A METHOD WHICH WOULD CAUSE BIRTH DEFECTS OR HARM TO CHILDREN I MAY HAVE.

a. the PILL

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

b. the CONDOM (also called rubbers)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

c. the IUD (also called the loop, shield or coil)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

d. RHYTHM (also called safe period or safe time of the month)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

e. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

f. the DIAPHRAGM (also called cup, disk or pouch)

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

5. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD BE EASY FOR ME TO USE CORRECTLY.

   a. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

6. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD REQUIRE A LOT OF EFFORT OR MOTIVATION FOR ME TO USE.

   a. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

7. IF I USED ____, I WOULD BE USING A METHOD WHICH HELPS PREVENT OR CLEAR UP MY HORMONAL OR MENSTRUAL CYCLE PROBLEMS.

   a. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

8. IF I USED ____, I WOULD BE USING A METHOD WHICH I THINK IS "NATURAL."

   a. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

9. IF I USED ____, I WOULD BE USING A METHOD WHICH PUTS AN INSERTED OBJECT OR BARRIER DEVICE IN MY BODY.

   a. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

10. IF I USED ____, I WOULD BE USING A METHOD WHICH PUTS A CHEMICAL OR DRUG IN MY BODY.

   a. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

11. IF I USED ____, I WOULD BE USING A METHOD WHICH IS MORALLY ACCEPTABLE TO ME.

a. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. WITHDRAWAL (also called pulling out or coitus interruptus

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

12. IF I USED ____, I WOULD BE USING A METHOD IN WHICH I WOULD HAVE TO PLAN TO HAVE IT "ON HAND" AT THE TIME OF INTERCOURSE.

a. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

13. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD HELP PREVENT ME FROM GETTING VENEREAL DISEASE (DISEASES WHICH ARE SPREAD THROUGH SEXUAL CONTACT).

a. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

14. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD BE EASY FOR ME TO HIDE FROM OTHERS WHO I WOULD NOT WANT TO KNOW ABOUT IT.

a. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

15. IF I USED ____, I WOULD BE USING A METHOD WHICH INTERRUPTS ON-GOING SEXUAL ACTIVITY (THAT IS, MY PARTNER AND I WOULD HAVE TO DELAY OR STOP IN THE MIDDLE OF OUR SEXUAL ACTIVITY TO USE IT).

a. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

16. IF I USED ____, I WOULD BE USING A METHOD WHICH REDUCES SPONTANEITY (THAT IS, SOMETIMES MY PARTNER AND I WOULD HAVE TO WAIT TO HAVE INTERCOURSE).

a. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

17. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD REDUCE SEXUAL PLEASURE FOR MY SEXUAL PARTNER.

a. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

18. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD REDUCE MY SEXUAL PLEASURE.

a. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

19. IF I USED ____, I WOULD BE USING A METHOD WHICH IS MESSY.

a. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

20. IF I USED ____, I WOULD BE USING A METHOD IN WHICH MY SEXUAL PARTNER IS THE ONE WHO IS RESPONSIBLE FOR BIRTH CONTROL.

a. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method

21. IF I USED ____, I WOULD BE USING A METHOD WHICH IS EASY FOR ME TO GET.

a. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. WITHDRAWAL (also called pulling out or coitus interruptus

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

22. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD REQUIRE THAT I SEE A DOCTOR TO GET IT.

a. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

23. IF I USED ____, I WOULD BE USING A METHOD WHICH WOULD COST ME A LOT OF MONEY.

a. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

24. IF I USED ____, I WOULD BE USING A METHOD WHICH REQUIRES THAT I GO TO A DRUGSTORE, PHARMACY OR CLINIC TO GET BIRTH CONTROL SUPPLIES.

a. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

Rate each method by reading the statement and mentally filling in the blank with the name of the method.

1. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, MOST PEOPLE WHO ARE IMPORTANT TO ME WOULD THINK I SHOULD USE ___AS A METHOD OF BIRTH CONTROL.

   a. the CONDOM (also called rubbers)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the IUD (also called loop, shield or coil)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   c. RHYTHM (also called safe period or safe time of the month)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the PILL

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   f. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

2. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, MOST DOCTORS WOULD THINK I SHOULD USE _____.

   a. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the PILL

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   c. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the IUD (also called loop, shield or coil)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   e. RHYTHM (also called safe period or safe time of the month)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the CONDOM (also called rubbers)

   likely_____:_____:_____:_____:_____:_____:_____unlikely
   extremely quite slightly neither slightly quite extremely

Rate each method by reading the statement and mentally filling in the blank with the name of the method.

3. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, MOST OF MY FRIENDS WOULD THINK I SHOULD USE _____.

   a. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

4. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, MY PARENTS WOULD THINK I SHOULD USE _____.

   a. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

Rate each method by reading the statement and mentally filling in the blank with the name of the method.

5. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, MOST PEOPLE IN MY RELIGION WOULD THINK I SHOULD USE _____.

   a. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

6. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, MY BOYFRIEND (OR SEXUAL PARTNER) WOULD THINK I SHOULD USE _____.

   a. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

1. WITH RESPECT TO USING BIRTH CONTROL IN THE NEXT 6 MONTHS, I WOULD WANT TO DO WHAT MOST DOCTORS WOULD THINK I SHOULD DO.

likely	:	:	:	:	:	:	unlikely
	extremely	quite	slightly	neither	slightly	quite	extremely

2. WITH RESPECT TO USING BIRTH CONTROL IN THE NEXT 6 MONTHS, I WOULD WANT TO DO WHAT MOST OF MY FRIENDS WOULD THINK I SHOULD DO.

likely	:	:	:	:	:	:	unlikely
	extremely	quite	slightly	neither	slightly	quite	extremely

3. WITH RESPECT TO USING BIRTH CONTROL IN THE NEXT 6 MONTHS, I WOULD WANT TO DO WHAT MY PARENTS WOULD THINK I SHOULD DO.

likely	:	:	:	:	:	:	unlikely
	extremely	quite	slightly	neither	slightly	quite	extremely

4. WITH RESPECT TO USING BIRTH CONTROL IN THE NEXT 6 MONTHS, I WOULD WANT TO DO WHAT MOST PEOPLE IN MY RELIGION WOULD THINK I SHOULD DO.

likely	:	:	:	:	:	:	unlikely
	extremely	quite	slightly	neither	slightly	quite	extremely

5. WITH RESPECT TO USING BIRTH CONTROL IN THE NEXT 6 MONTHS, I WOULD WANT TO DO WHAT MY BOYFRIEND (OR SEXUAL PARTNER) WOULD THINK I SHOULD DO.

likely	:	:	:	:	:	:	unlikely
	extremely	quite	slightly	neither	slightly	quite	extremely

INSTRUCTIONS

In this section, you are asked to indicate how likely it is that you would intend to use six different methods of birth control if you were going to have sexual intercourse in the next 6 months. To rate your intentions, you will use a rating scale with 7 places in which you are to make a check mark in the place on the scale which best describes your opinion. The rating scale looks like this:

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

For example, if you think it is extremely likely that you would intend to use Method X, you would mark the scale like this:

likely__X____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

Suppose you think it is neither likely nor unlikely or is about a 50/50 chance you would intend to use Method X. Then you would mark the scale like this:

likely_____:_____:_____:__X__:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

Suppose you think it is quite unlikely that you would intend to use Method X. Then you would mark the scale like this:

likely_____:_____:_____:_____:_____:__X__:_____unlikely
extremely quite slightly neither slightly quite extremely

In making your ratings, please remember the following points:

a. Place your marks in the middle of spaces, not on the boundaries:

_____:__X__:_____:_____:_____:_____:____X_____
this not this

b. Be sure you answer all questions--please do not skip any.

c. Never put more than one check mark on each scale.

d. Do not ask anyone else to help you fill out the survey. I am only interested in your individual opinions.

1. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, I WOULD INTEND TO USE _____. (RATE EACH METHOD BY MENTALLY FILLING IN THE BLANK WITH THE NAME OF THE METHOD.)

   a. the CONDOM (also called rubbers)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   b. the PILL

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   c. RHYTHM (also called safe period or safe time of the month)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   d. the IUD (also called loop, shield or coil)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   e. WITHDRAWAL (also called pulling out or coitus interruptus)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

   f. the DIAPHRAGM (also called cup, disk or pouch)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

2. IF YOU WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, WHICH OF THE BIRTH CONTROL METHODS LISTED BELOW WOULD YOU BE MOST LIKELY TO INTEND TO USE? (CHECK ONE ANSWER ONLY)

   _____WITHDRAWAL (also called pulling out or coitus interruptus)

   _____the DIAPHRAGM (also called cup, disk or pouch)

   _____the PILL

   _____the IUD (also called loop, shield or coil)

   _____RHYTHM (also called safe period or safe time of the month)

   _____the CONDOM (also called rubbers)

   _____other method (which: _____)

   _____my sexual partner and I would not use any method of birth control at all

Rate each method, by reading the statement and mentally filling in the blank with the name of the method.

3. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE MANY TIMES IN THE NEXT 6 MONTHS, I WOULD INTEND TO USE _____.

a. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

4. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE ONLY A FEW TIMES IN THE NEXT 6 MONTHS, I WOULD INTEND TO USE _____.

a. RHYTHM (also called safe period or safe time of the month)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

b. the DIAPHRAGM (also called cup, disk or pouch)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

c. WITHDRAWAL (also called pulling out or coitus interruptus)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

d. the PILL

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

e. the CONDOM (also called rubbers)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

f. the IUD (also called loop, shield or coil)

likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
extremely quite slightly neither slightly quite extremely

1. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, USING THE IUD (ALSO CALLED LOOP, SHIELD OR COIL) WOULD BE

good	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	bad
harmful	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	helpful
wise	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	foolish
undesirable	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	desirable

2. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, USING WITHDRAWAL (ALSO CALLED PULLING OUT OR COITUS INTERRUPTUS) WOULD BE

good	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	bad
harmful	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	helpful
wise	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	foolish
undesirable	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	desirable

3. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, USING THE PILL WOULD BE

good	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	bad
harmful	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	helpful
wise	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	foolish
undesirable	extremely	: quite	: slightly	: neither	: slightly	: quite	: extremely	desirable

4. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, USING RHYTHM (ALSO CALLED SAFE PERIOD OR SAFE TIME OF THE MONTH) WOULD BE

good	extremely	quite	slightly	neither	slightly	quite	extremely	bad
harmful	extremely	quite	slightly	neither	slightly	quite	extremely	helpful
wise	extremely	quite	slightly	neither	slightly	quite	extremely	foolish
undesirable	extremely	quite	slightly	neither	slightly	quite	extremely	desirable

5. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, USING THE CONDOM (ALSO CALLED RUBBERS) WOULD BE

good	extremely	quite	slightly	neither	slightly	quite	extremely	bad
harmful	extremely	quite	slightly	neither	slightly	quite	extremely	helpful
wise	extremely	quite	slightly	neither	slightly	quite	extremely	foolish
undesirable	extremely	quite	slightly	neither	slightly	quite	extremely	desirable

6. IF I WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, USING THE DIAPHRAGM (ALSO CALLED CUP, DISK OR POUCH) WOULD BE

good	extremely	quite	slightly	neither	slightly	quite	extremely	bad
harmful	extremely	quite	slightly	neither	slightly	quite	extremely	helpful
wise	extremely	quite	slightly	neither	slightly	quite	extremely	foolish
undesirable	extremely	quite	slightly	neither	slightly	quite	extremely	desirable

In this section, you are asked to rate how strongly you agree or disagree with different statements about pregnancy and birth control. Assume or imagine you are currently having sexual intercourse with someone. Please mark the rating scales as before.

1. LUCK PLAYS A BIG PART IN DETERMINING WHETHER OR NOT I GET PREGNANT.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

2. IF I GOT PREGNANT I WOULD BE DIRECTLY RESPONSIBLE.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

3. THE MAIN THING THAT DETERMINES WHETHER OR NOT I GET PREGNANT IS WHAT I DO MYSELF.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

4. THE TYPE OF CARE I GET FROM DOCTORS AND NURSES IS WHAT IS RESPONSIBLE FOR WHETHER OR NOT I GET PREGNANT.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

5. MY SEXUAL PARTNER(S) DETERMINES WHETHER OR NOT I GET PREGNANT.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

6. NO MATTER WHAT BIRTH CONTROL METHOD I USE, I'M LIKELY TO GET PREGNANT.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

7. THE HELP I GET FROM DOCTORS AND NURSES DETERMINES WHETHER OR NOT I GET PREGNANT.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

8. IF I GET PREGNANT, IT IS MY OWN FAULT.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

9. MY NOT GETTING PREGNANT IS MOSTLY A MATTER OF GOOD FORTUNE OR BECAUSE I'M JUST PLAIN LUCKY.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

10. I AM THE ONE WHO DETERMINES WHETHER OR NOT I GET PREGNANT.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

11. I CAN KEEP FROM BECOMING PREGNANT BY SEEING DOCTORS AND NURSES.

strongly agree	moderately agree	slightly agree	slightly disagree	moderately disagree	strongly disagree

In this section, you will be asked to answer questions about your sexual history and personal experience with birth control.

Remember that there is no need to feel any embarrassment about any answers you give. Also remember that all the information you give will be kept strictly confidential and that your name will not in any way be identified with your answers.

1. HAVE YOU EVER HAD SEXUAL INTERCOURSE?

   _____yes

   _____no

2. IF YOU WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, HOW FREQUENTLY DO YOU THINK YOU WOULD HAVE INTERCOURSE? (IF YOU DON'T KNOW FOR SURE, PLEASE GUESS.)

   _____ # of times would have intercourse in the next 6 months

3. IF YOU WERE GOING TO HAVE SEXUAL INTERCOURSE IN THE NEXT 6 MONTHS, HOW LIKELY IS IT THAT INTERCOURSE WOULD BE FREQUENTLY UNPLANNED OR UNEXPECTED BY YOU? (IF YOU DON'T KNOW FOR SURE, PLEASE GUESS.)

   likely_____ : _____ : _____ : _____ : _____ : _____ : _____unlikely
   extremely quite slightly neither slightly quite extremely

(IF YOU HAVE NEVER HAD SEXUAL INTERCOURSE, SKIP TO Q17 ON THE PAGE MARKED BC-4 IN THE UPPER RIGHT-HAND CORNER)

4. HOW OLD WERE YOU THE FIRST TIME YOU HAD SEXUAL INTERCOURSE?

   _____age

5. HAVE YOU HAD SEXUAL INTERCOURSE IN THE PAST 6 MONTHS?

   _____yes ⟶ (GO TO NEXT QUESTION)

   _____no ⟶ (SKIP TO Q8 ON THE TOP OF THE NEXT PAGE)

6. HOW MANY TIMES HAVE YOU HAD SEXUAL INTERCOURSE IN THE PAST 6 MONTHS? (IF YOU DON'T KNOW FOR SURE, PLEASE GUESS.)

   _____ # of times have had intercourse in the past 6 months

7. HOW MANY TIMES WAS SEXUAL INTERCOURSE UNPLANNED OR UNEXPECTED BY YOU IN THE PAST 6 MONTHS? (IF YOU DON'T KNOW FOR SURE, PLEASE GUESS.)

   _____ # of times intercourse was unplanned or unexpected by you in the past 6 months

8. ARE YOU OR YOUR PARTNER USING ANY METHOD OF BIRTH CONTROL OR DOING ANYTHING TO PREVENT PREGNANCY RIGHT NOW?

_____yes ⟶ (SKIP TO Q11)

_____no ⟶ (GO TO NEXT QUESTION)

9. HAVE YOU OR YOUR PARTNER USED ANY METHOD OF BIRTH CONTROL OR DONE ANYTHING TO PREVENT PREGNANCY WITHIN THE PAST 6 MONTHS?

_____yes ⟶ (SKIP TO Q11)

_____no ⟶ (GO TO NEXT QUESTION)

10. HAVE YOU OR YOUR PARTNER EVER USED ANY METHOD OF BIRTH CONTROL OR DONE ANYTHING TO PREVENT PREGNANCY?

_____yes ⟶ (GO TO NEXT QUESTION)

_____no ⟶ (SKIP TO Q17 ON THE PAGE MARKED BC-4 IN THE UPPER RIGHT-HAND CORNER)

11. WHAT IS THE CURRENT OR MOST RECENT METHOD YOU OR YOUR PARTNER HAVE USED? (CHECK ONE ANSWER.)

_____the PILL

_____the IUD (also called loop, shield or coil)

_____the DIAPHRAGM (also called cup, disk or pouch)

_____the CONDOM (also called rubbers)

_____WITHDRAWAL (also called pulling out or coitus interruptus)

_____RHYTHM (also called safe period or safe time of the month)

_____FOAM, CREAM, JELLY OR SUPPOSITORY

_____DOUCHE

_____NONE

_____OTHER (please specify: _____)

12. WHERE DID YOU GET THIS METHOD? (CHECK ONE ANSWER)

_____hospital or hospital clinic

_____school clinic

_____other clinic

_____private physician

_____drugstore or pharmacy

_____my sexual partner supplied it

_____other (please specify: _____)

13. DID YOU OR YOUR PARTNER USE ANY OTHER METHOD OR DO ANYTHING TO PREVENT PREGNANCY JUST BEFORE USING THE METHOD YOU CHECKED IN QUESTION 11?

_____yes ⟶ (GO TO NEXT QUESTION)

_____no ⟶ (SKIP TO Q16)

14. WHAT METHOD DID YOU OR YOUR PARTNER USE JUST BEFORE YOUR CURRENT OR MOST RECENT METHOD? (CHECK ONE ANSWER)

_____the PILL

_____the IUD (also called loop, shield or coil)

_____the DIAPHRAGM (also called cup, disk or pouch)

_____the CONDOM (also called rubbers)

_____WITHDRAWAL (also called pulling out or coitus interruptus)

_____RHYTHM (also called safe period or safe time of the month)

_____FOAM, CREAM, JELLY OR SUPPOSITORY

_____DOUCHE

_____NONE

_____OTHER (please specify: _____)

15. WHERE DID YOU GET THIS METHOD? (CHECK ONE ANSWER)

_____hospital or hospital clinic

_____school clinic

_____other clinic

_____private physician

_____drugstore or pharmacy

_____my sexual partner supplied it

_____other (please specify: _____)

16. WHAT, IF ANY, OTHER METHODS OF BIRTH CONTROL HAVE YOU OR A PARTNER EVER USED? (PLEASE CHECK ALL OTHER METHODS EVER USED BY YOU OR A PARTNER.)

_____the PILL

_____the IUD (also called loop, shield or coil)

_____the DIAPHRAGM (also called cup, disk or pouch)

_____the CONDOM (also called rubbers)

_____WITHDRAWAL (also called pulling out or coitus interruptus)

_____RHYTHM (also called safe period or safe time of the month)

_____FOAM, CREAM, JELLY OR SUPPOSITORY

_____DOUCHE

_____NO OTHER METHODS EVER USED EXCEPT THOSE CHECKED IN QUESTIONS 11 AND 14

_____OTHER (please specify: _____)

17. WHAT IS THE LARGEST AMOUNT OF MONEY YOU WOULD BE WILLING TO SPEND ON A YEARLY BASIS FOR A CONTRACEPTIVE, INCLUDING DOCTOR VISITS AND SUPPLIES IF NECESSARY? (CHECK ONE ANSWER)

____None, I would only use methods which my partner would get	____$1 to $10	____$101 to $150
	____$11 to $20	____$151 to $200
____None, I would never see a doctor for birth control or use any birth control supplies	____$21 to $30	____$201 to $250
	____$31 to $40	____$251 to $300
	____$41 to $50	____$301 to $400
____None, I would only go someplace where I could get doctor visits and birth control supplies for free	____$51 to $75	____$401 to $500
	____$76 to $100	____$501 or more

18. IS THIS AMOUNT OF MONEY AVAILABLE TO YOU FOR SUCH USE?

____yes

____maybe

____no

____does not apply, I would not spend any money at all

19. HOW MUCH MONEY HAVE YOU SPENT FOR A CONTRACEPTIVE WITHIN A TYPICAL YEAR? (CHECK ONE ANSWER)

____None, my partner gets our birth control supplies	____$1 to $10	____$101 to $150
	____$11 to $20	____$151 to $200
____None, I don't see a doctor and my partner and I don't use any birth control supplies	____$21 to $30	____$201 to $250
	____$31 to $40	____$251 to $300
	____$41 to $50	____$301 to $400
____None, I get my doctor visits and birth control supplies for free	____$51 to $75	____$401 to $500
	____$75 to $100	____$501 or more

____None, I have never had sexual intercourse

20. ARE THERE ANY PHYSICAL OR FAMILY MEDICAL HISTORY REASONS WHY YOU CANNOT USE ANY OF THE FOLLOWING BIRTH CONTROL METHODS? (CHECK YES OR NO FOR EACH METHOD LISTED BELOW.)

	YES	NO
a. the PILL	____	____
b. the IUD (also called loop, shield or coil)	____	____
c. the DIAPHRAGM (also called cup, disk or pouch)	____	____
d. the CONDOM (also called rubbers)	____	____
e. WITHDRAWAL (also called pulling out or coitus interruptus)	____	____
f. RHYTHM (also called safe period or safe time of the month)	____	____

This section contains a few simple questions for background information.

1. WHAT IS YOUR AGE (AS OF YOUR LAST BIRTHDAY)? _____age

2. WHAT GRADE OR YEAR OF COLLEGE ARE YOU CURRENTLY ENROLLED IN?

_____freshman

_____sophomore

_____junior

_____senior

_____graduate student (what year: _____)

3. WHO ARE YOU CURRENTLY LIVING WITH? (CHECK ONE ANSWER)

_____both parents

_____one parent only (who: _____)

_____other relatives (who: _____)

_____roommates in a university dormitory

_____alone in a university dormitory

_____roommates in an apartment or house

_____boyfriend in an apartment or house

_____alone in an apartment or house

_____other (please specify: _____)

4. WHAT IS YOUR CURRENT MARITAL STATUS:

_____married and living with my husband

_____separated

_____divorced

_____widowed

_____never been married

5. WHAT IS YOUR RELIGION?

_____Catholic

_____Protestant (what denomination: _____)

_____Jewish

_____atheist or agnostic or none

_____other (please specify: _____)

6. HOW RELIGIOUS WOULD YOU SAY YOU ARE RIGHT NOW?

religious	:	:	:	:	:	:	nonreligious
extremely	quite	slightly	neither	slightly	quite	extremely	

13. WHAT WAS THE HIGHEST GRADE OF SCHOOL YOUR FATHER COMPLETED? (CIRCLE THE ONE CORRECT ANSWER.)

elementary: 0 1 2 3 4 5 6 7 8

high school: 9 10 11 12

college: some college | bachelor's degree | some graduate school | graduate degree

14. WHAT WAS YOUR MOTHER'S INCOME FOR 1981 BEFORE DEDUCTIONS? (CHECK ONE ANSWER.)

_____$5,000 or less

_____$5,001 to $10,000

_____$10,001 to $15,000

_____$15,001 to $20,000

_____$20,001 to $30,000

_____$30,001 to $50,000

_____$50,001 or more

15. WHAT IS YOUR MOTHER'S OCCUPATION? (PLEASE KEEP THIS ANSWER GENERAL)

_____

16. WHAT WAS THE HIGHEST GRADE OF SCHOOL YOUR MOTHER COMPLETED? (CIRCLE THE ONE CORRECT ANSWER.)

elementary: 0 1 2 3 4 5 6 7 8

high school: 9 10 11 12

college: some college | bachelor's degree | some graduate school | graduate degree

17. WHAT IS YOUR RACIAL OR ETHNIC BACKGROUND?

_____Black

_____White

_____Latino or Hispanic

_____Asian

_____Other (please specify: _____)

APPENDIX C

CONSENT FORM

PROJECT DESCRIPTION

This research project is concerned with how factors such as beliefs, attitudes, and interpersonal influences affect contraceptive behavior. In this phase of the project, participants will be informally interviewed about the issue of contraception. Participants will be asked a variety of questions concerning birth control, including, for example, questions about their personal beliefs and behavior with respect to contraception.

All information provided by participants will be kept strictly confidential. Coding numbers, not names, will be used for all identification purposes.

CONSENT AGREEMENT

I consent to participate in this research project and understand that I may choose to stop participating at any time without stating a reason or explanation. Terminating my participation in the project at any time will not affect my receiving participation credits.

_____ _____

(witness' signature) (participant's signature)

_____ _____

(date) (date)

CONSENT FORM

PROJECT DESCRIPTION

This research project is concerned with how factors such as beliefs, attitudes, and interpersonal influences affect contraceptive behavior. In this phase of the project, participants will complete a survey about the issue of contraception. The survey covers a variety of questions concerning birth control, including for example, questions about participants' personal beliefs and behavior with respect to contraception.

All information provided by participants will be kept strictly confidential. Coding numbers, not names, will be used for all identification purposes. This consent form will be removed from this survey before your answers are examined, to guarantee you confidentiality and anonymity.

CONSENT AGREEMENT

I consent to participate in this research project and understand that I may choose to stop participating at any time without stating a reason or explanation. Terminating my participation in the project at any time will not affect my receiving participation credits.

_____ (witness' signature)

_____ (participant's signature)

_____ (date)

_____ (date)

CONSENT FOR PARTICIPATION IN A MEDICAL RESEARCH PROJECT

I, _____, state that I am between eighteen (18) and twenty-four (24) years of age and wish to participate in a program of psychological research being conducted by E. Swift, M.D., Cook County Hospital, Elicia J. Herz, M.A., Loyola University of Chicago, and Laura C. Brey, M.S., Cook County Hospital.

The purpose of the research is to examine how beliefs, attitudes and social influences affect contraceptive behavior.

The project involves (nature of experiment): participating in an individual interview conducted by Elicia J. Herz, during clinic hours, while waiting to see the physician on a voluntary basis. The interview covers a variety of simple questions about your personal beliefs and behavior with respect to contraception. Participation in this project is not required to receive service in this clinic.

The experimental procedures are: None.

The personal risks involved are: None. All information provided by respondents will be kept strictly confidential. Coding numbers, not names, will be used for all identification purposes.

Appropriate alternative procedures which might benefit me personally are: None.

STRIKE OUT (A) OR (B)

(A) I acknowledge that I have been informed that this procedure is not involved in my treatment and is not intended to benefit my personal health.

(B) I acknowledge that I have been informed that this procedure is also designed to assist in maintaining or improving my personal health and will benefit me personally in the following way:

I acknowledge that E. Swift, M.D., Elicia J. Herz, M.A., or Laura C. Brey, M.S. has fully explained to me the risks involved and the need for the research, and has informed me that I may withdraw from participation at any time, and has offered to answer any inquiries which I make concerning the procedures followed. I freely and voluntarily consent to my participation in this research project, and have been informed that I may have a copy of this consent form if I so desire.

(OVER)

I have been informed that this procedure is subject to prior review and approval by the Scientific Committee and the Human Experimentation Subcommittees of the Hektoen Institute and Cook County Hospital, as required by policy of the Department of Health and Human Services, and that I, the patient, have the right and opportunity to consult with these Committees if I so desire.

I understand that in the event of physical injury resulting from this research there is no compensation and/or payment for medical treatment from the Cook County Hospital for such injury except as may be required of the Hospital by law.

Signature of Physician or Co-Investigator	Signature of Volunteer
Witness to Explanation -- Not to Signature	Date

TO RESPONDENTS WHO COMPLETED THE CONTRACEPTION SURVEY

Again, let me thank you for helping me out with my study. I hope the results from this study will be useful to family planning counselors who must advise clients and women in general who are trying to deal with the difficult decision of which contraceptive, if any, they want to use. I want to take this opportunity to further explain the study and how the information you gave me will be used.

Basically, I'm interested in finding out whether two kinds of factors influence contraceptive choice or decisions. These include (2) how perceived positive benefits and negative consequences and (b) how interpersonal or social groups of importance to women your age both affect contraceptive preferences. Hopefully, this information will help me understand why and how, for example, potential pill users are different from women who prefer diaphragms or the rhythm method, etc.

Feel free to call me any time (274-3000, Ext. 327) if you have any questions about the study or wish to discuss it further with me.

Thank you again for your help.

Lisa Herz

APPENDIX D

External variables utilized in various analyses reported in the text were coded in the following manner:

a) race: 3 dummy variables for Black, White, and Latino

b) religion: 2 dummy variables for Catholic and Protestant

c) strength of religious belief: a single 7-point scale ranging from extremely nonreligious (1) to extremely religious (7)

d) religion by strength of religious belief: 2 interaction dummy variables representing the product of the two previously described variable sets

e) current year in school: a single 4-point scale ranging from freshman (1) to senior (4)

f) current age

g) estimated socio-economic status: Respondents reported the 1981 income, occupation, and education level for each parent. Income was reported by marking one of seven categories; occupation was described in an open-ended format; education was indicated by marking the highest year of schooling completed. Occupation categories were coded on the basis of status classifications developed by A. M. Edwards for measuring socio-economic position (cf. Miller, 1970). Each income category was recoded as the mid-point value. Three variables were created to represent parental income, occupation and education level, each coded for whichever parent had the highest nonmissing value; in the case of income, if values for both parents were nonmissing, they were added. These variables were transformed into z-scores. The z-scores were summed and divided by the number of nonmissing values for the three variables used to create the summed score, thus representing an estimated parental socio-economic status index. As expected, the three variables used to create this index were positively intercorrelated at the .01 level.

h) current living situation: 2 dummy variables for "living with relatives" and "living with nonrelatives"

i) number of times respondents estimated they would have sex in the next six months

j) how likely sexual intercourse would be unplanned or unexpected in the next six months: a single 7-point scale ranging from extremely unlikely (1) to extremely likely (7)

k) sexual experience and previous use of the method: for the pill, condom, withdrawal, and rhythm methods, two dummy variables for virgins and ever users were utilized; for the IUD and diaphragm, one variable representing virgins versus nonvirgins, coded zero and one respectively, was used

l) three locus of control subscales: Factor analyses were performed on eleven 6-point scales, which ranged from strongly agree (6) to strongly disagree (1), measuring different locus of control beliefs. These analyses indicated that three subscales existed in the college sample data. The subscales were created by summing the appropriate items to represent a "personal responsibility and control" 4-item subscale with an alpha level of .72, a "chance" subscale composed of 3 items with an alpha level of .53, and a "powerful others-medical personnel" subscale composed of 3 items with an alpha level of .53.

APPROVAL SHEET

The dissertation submitted by Elicia J. Herz has been read and approved by the following committee:

Dr. John S. Carroll, Director
Associate Professor, Psychology, Loyola

Dr. John D. Edwards
Associate Professor, Psychology, Loyola

Dr. Emil J. Posavac
Professor, Psychology, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Ph.D.

4/1/83
Date

Director's Signature