

SELF-EFFICACY AND FERTILITY REGULATION
BY SINGLE WOMEN

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The (non)use of birth control devices or techniques by single women is a topic of considerable current interest. Research has consistently shown that teenage women do not use birth control on most of the occasions when they have sexual intercourse (Zelnik and Kantner, 1977, 1980). As a result, one million women in this age group conceive each year; forty percent of these pregnancies are terminated by a legal abortion (Hayes, 1986). Research on college-age women reports that a much larger percentage use contraception, at least occasionally; however, some women are inconsistent users, and a minority report that they have never used birth control (DeLamater and MacCorquodale, 1979). Some of this increase in use is related to chronological age and increased frequency of intercourse (Morrison, 1985). But the relationships between age and use and coital frequency and use do not explain all of the variation in use, leading investigators to study individual differences in the hope of identifying other influences.

Within social psychology, research on contraceptive use has been carried out within one of two substantive paradigms. One is focussed on the process by which a woman makes decisions about use, and identifies her attitudes toward use as the principal influences (e.g., Fishbein and Jaccard, 1973). The other emphasizes the links between self-related attitudes and contraceptive behavior. It is the latter which provides the basis for the research to be reported here.

Aspects of Self-image

Several studies have assessed the relationship between components of the self-image and contraceptive use.

A study by MacCorquodale and DeLamater (1979) examined the links between several aspects of self-image and sexuality. Analyses of interview data from random samples of college students (n=856) and nonstudents (n=511) included measures of four components: self-esteem, evaluations of oneself as a social actor, evaluations of self as moral, and body image (evaluation of one's physical attributes). The dependent variables included attitudes toward premarital sexual behavior, and three measures of sexual experience: lifetime behavior, number of times the person had had intercourse, and number of coital partners. Of the components, evaluation of self as a social actor [ratings on the dimensions of comfortable/awkward with others, (not) likeable, (lacking) self-confidence, and personally (un)desirable] and of one's physical features were consistently related to sexual experience.

A subsequent analysis of the same data (McKinney, Sprecher and DeLamater, 1984) focused on the relationship between self-image and contraceptive behavior. Only the sexually active people were included in these analyses (468 women, 499 men). Both a general measure of self-image, based on Sherwood's (1962) scale, and the body-image measure were positively correlated with lifetime contraceptive use. Lifetime use was the percentage of all the times the person has had coitus on which s/he used birth control. In addition, the measure of

self-image was positively correlated with current use of birth control by sexually active women.

A study by Herold, Goodwin and Lero (1974) included measures of self-esteem (evaluation) as distinct from self-image. Data were obtained from adolescent women who came to a clinic seeking birth control. Women with high self-esteem had significantly more positive attitudes toward using birth control pills, had used a more effective method of contraception at last intercourse, and reported more consistent use of birth control than women with low self-esteem.

Self-Efficacy

In his recent work, Bandura (1977, 1982) has emphasized the importance of self-perceptions of efficacy as a determinant of behavior. There are two components of self-efficacy with regard to any behavior. The first is *outcome expectancy*, the belief that a given behavior will lead to an outcome; this is also referred to as belief in a response- outcome contingency. The second is *efficacy expectations*, the belief that one can successfully execute the behavior. The degree of self-efficacy affects three aspects of behavior. The first is choice of activity; we select from a set of alternatives the behavior(s) associated with greater self-efficacy. The second is effort; we put forth greater effort when our self-efficacy for that behavior is high. Finally, higher self-efficacy is associated with greater persistence at an activity.

According to Bandura, there are several sources of information about one's efficaciousness. One is direct experience, the results of past performances of the behavior by the person. The second is vicarious experience, seeing others perform the behavior and succeed or not in achieving the outcome. The third is verbal persuasion, or more generally social influence. Bandura believes that direct experience is most influential, and that verbal persuasion is least influential.

Bandura and his colleagues have reported the results of several experiments designed to test hypotheses derived from the theory. Bandura, et al. (1977), studied the influence of direct versus vicarious experience on self-efficacy. Adult snake phobics were assigned to one of two treatment conditions, or to a control group. In the direct experience condition, the therapist briefly modeled six activities involving increasing physical contact with a snake, and then had the subject perform them. On succeeding trials, subjects were urged to engage in the tasks for longer periods of time. In the vicarious experience condition, subjects observed the therapist perform the activities, with the amount of time spent observing matched to time spent handling in the first condition. The dependent measures were predictions by the subject of the likelihood that he would perform each task, the certainty of his prediction, and the likelihood that he would perform that task with a strange snake. The direct experience condition produced higher, stronger and more generalized expectations of efficacy than the vicarious experience condition.

Bandura and Schunk (1981) studied the impact of achieving distal goals, proximal goals or no goals on the development of self-perceptions of efficacy. The subjects were children seven to ten years old with mathematics "deficits" who exhibited "gross disinterest" in mathematical tasks. In the distal goal condition, the child was instructed to complete 42 problems over seven task sessions. In the proximal condition, the child was instructed to complete six problems per session. Using a self-directed learning situation, all children completed the 42 problems. Self-efficacy was measured by showing slides of math problems and asking each child to rate his/her ability to solve the problem and his/her certainty of the judgement. In the proximal condition children demonstrated a marked increase in self-efficacy. There was no effect of achieving distal goals on self-efficacy.

Self-efficacy and Contraceptive Use

Perceptions of efficacy may play an important role in the use of contraceptives. First, a person is more likely to use birth control if s/he perceives that use will lead to a goal, such as preventing pregnancy, i.e., has an outcome expectancy. Second, an individual is more likely to use a method which s/he perceives that s/he is able to use, i.e., has a high efficacy expectation. Birth control methods vary in the amount and type of effort required to use them successfully, and thus vary in the degree to which their use is dependent on high efficacy. At the same time, it may be relatively difficult to develop a sense of self-efficacy regarding contraceptive use. Initial experiences are likely to be vicarious rather than direct. With regard to performance experiences, in the short term one

may experience the difficulties of use and even undesirable side effects that are more salient than achieving the distal goal of preventing pregnancy (Luker, 1975). Finally, birth control use may be more responsive to verbal persuasion, since it is associated with the interpersonal behavior of sexual intercourse.

Two studies have been reported that consider the relationship between self-efficacy and contraceptive use.

Levinson (1983) studied 258 females aged 20 or younger who came to a family planning clinic. One-half of the women came for reasons related to birth control, one-third for reasons related to pregnancy and abortion, and seventeen percent for other gynecological concerns. Data were collected via a short self-administered questionnaire. Levinson assessed contraceptive self-efficacy or CSE, which she defines as "the strength of a teenager's conviction that she should and can exercise control within sexual and contraceptive situations to achieve a contraceptive priority." The measure of CSE consisted of eighteen statements describing various situations, each involving discussion with others about, obtaining from certain sources, and use and nonuse of contraceptives. The respondents rated each situation on a five-point scale from "not at all true of me" (1) to "completely true of me" (5). Factor analyses identified four factors; two of these were significantly associated with the woman's use of birth control. One factor included items involving thinking about and planning for sexual activity and seeking birth control. The other factor consisted of items involving taking personal responsibility for her sexual behavior and contraceptive (non)use. Contraceptive use was measured by a composite seven-point scale; scores were based on

reported frequency of unprotected intercourse, use of contraceptives, and effectiveness of use. Women who indicated that they could plan and take responsibility for their sexual activity and birth control use were more effective users of contraception. Although Levinson describes her 18-item scale as a measure of self-efficacy, the two factors that were related to use are not clearly measures of Bandura's constructs.

McKinney (1982), using interview data from a random sample of college sophomore women, directly assessed the relationship between self-efficacy and birth control use. The measure of outcome expectancy, i.e., the belief that contraceptive use prevents pregnancy, was the response to the statement, "I think contraceptives work well, in general," and the sum of the respondent's estimates of the effectiveness of ten contraceptive methods. The measure of efficacy expectations was response to the statement, "I would be capable of successfully using contraceptives," and the sum of the respondent's ratings of how competent she is to use each of nine methods correctly, and consistently. The measures of birth control use were 1) the effectiveness of the method the respondent was using at the time of the interview, and 2) her report of how consistently she used that method. The results indicated that the general perception that she is capable of using birth control is related to the effectiveness of the method she was using. The measure of perceived competence to consistently use each of the nine methods was significantly and positively related to the consistency with which she used the method. These findings directly support the relevant aspects of Bandura's conceptualization.

McKinney also assessed the strength of several of the hypothesized influences on self-efficacy. Her analyses included two measures of past experience, number of pregnancies and number of men with whom the woman had had sexual intercourse. Also included were two measures of vicarious experience: how many of her three close friends had been pregnant, and how many of them used chemical or mechanical means of contraception. There were several measures of social influence, including the relative influence on her contraceptive behavior of her mother, father, partner, male friends and female friends. The results indicated that one measure of past experience, number of partners, was significantly and positively related to outcome expectancy. Neither measure of vicarious experience was related to self-efficacy. With regard to social influences, women who reported that they could comfortably discuss birth control with peers, and that they were satisfied with their talk with partners about birth control rate themselves as more competent to use birth control. Also, women who reported that their mothers were important sources of knowledge about birth control believe that they are more competent and attain higher scores on the efficacy index.

The research reported in this paper was designed to further assess the extent to which self-efficacy is related to contraceptive behavior. The reports by Levinson and McKinney focus on the relationship between general measures of self-efficacy and of birth control use. The present analysis considers the relationship between measures of perceived efficacy with regard to specific techniques and the use of these techniques. The analyses to be reported were designed to test two hypotheses:

1. Direct experience with a birth control technique increases self-efficacy for that technique. Thus, users of a specific technique to control fertility perceive themselves as significantly more efficacious at using that method than do non-users of that method.
2. Self-efficacy affects behavioral choice. Thus, self-efficacy is significantly related to use of a specific contraceptive technique net of other influences.

METHODS

Questionnaire

A questionnaire was designed to assess several aspects of sexual behavior and contraceptive use. In addition, measures of the two components of self-efficacy were constructed, based upon the work of Bandura and his colleagues.

Efficacy expectation was measured with two items. We asked each woman to indicate the degree to which she felt able to use a method correctly, and the degree to which she felt able to use it consistently. Birth control must not only be used correctly, but also each time one has intercourse in order to effectively prevent pregnancy. For each item, the response alternatives were "very competent," "competent," "somewhat competent," and "not at all competent." Each item was asked about each of ten contraceptive methods.

The other component of self-efficacy, outcome expectation, was measured by two questions. One asked, "How much control do you feel you have over preventing pregnancy?" The alternatives were "complete control," "moderate control," "minor control," and "no control at all." The following question asked "how much of this control is due to your own actions . . .?" The woman was asked to respond with a percentage figure.

The questionnaire included measures of three influences on self-efficacy identified by Bandura. We asked each respondent whether she was familiar with each of eleven contraceptive techniques, that is, whether she knew enough about each method to decide whether she wanted to use it. Also, a sexual/contraceptive history was obtained for each woman. She was asked to recall each male with whom she had ever had intercourse; she was then asked several questions about birth control use with that partner; the data to be analyzed include this information with regard to her current partner. The questions asked what method(s) she had used with that partner, how consistently she used each method, what influenced her decision to use the method, and why she stopped using the method. Thus we can ascertain for each woman her direct experience with each method. In addition, we asked each woman what method(s) her three best female friends were using; this provides a measure of vicarious experience. Finally, several items inquired about the extent to which her partner influenced her decisions about contraceptives. These included questions asking how satisfied she was with "the way you and your current partner talk about birth control," "who usually has the final

say" in decisions about birth control, and "how does your current partner feel about your (current) contraceptive method?"

In addition to self-efficacy, several attitudes toward contraceptives may influence the choice of method. We asked questions about four considerations: 1) how effective each method is, 2) how safe it is, 3) how much "hassle" is involved in using it, and 4) how easy it is to obtain. With regard to effectiveness, we asked whether the method "prevents pregnancy" "close to 100% (of the time)," about 75%, 50%, 25%, or "not at all." For the questions about safety and hassle, four alternatives were presented, including "very safe/very much a hassle," "safe/a hassle," "somewhat safe/somewhat a hassle" and "not at all safe/ not at all a hassle." For ease of access, five alternatives were presented: "very easy," "easy," "difficult," "very difficult" and "impossible."

The dependent measure is the birth control method the woman was using at the time of the interview. The self-efficacy and attitude measures assess these variables at the time of the data collection. The attitude-behavior literature has demonstrated the importance of using attitude and behavioral measures that correspond in time (e.g., Davidson and Jaccard, 1979). This argues against using whether the woman has ever used birth control as the dependent measure, since we cannot expect present attitudes to necessarily relate to past behavior. Similarly, we are concerned with behavior rather than behavioral intention ("how likely is it that you will use . . .") (cf Pagel and Davidson, 1984). In analyses involving all respondents, we use summary measures of self-efficacy and attitudes and relate them to the (use) effectiveness rating of the woman's current method. In

other analyses, we relate feelings of self-efficacy and attitudes toward specific techniques to whether the woman is currently using that method.

Samples

The analyses to be reported here involve data from three samples.

Sample 1. The first is a random sample of women students who were sophomores at the University of Wisconsin-Madison at the time of the study. A sample of 263 single women was drawn by computer from the Registrar's records. We were able to contact 223 of the women by telephone or mail. Interviews were completed with 179 women, eighty percent of those contacted, and sixty-nine percent of the original sample.

Interviews were used to gather data from these respondents. Three women conducted the interviews; two were graduate students and the third was a senior. All three had prior interviewing experience. Meetings were held to familiarize them with the interview schedule and to discuss potential problems. Each interviewer did practice interviews using volunteers as respondents. Close contact was maintained throughout the interviewing phase so that problems could be dealt with as they arose. The quality of the interviews was very high. None of the respondents terminated their interview, and the incidence of missing data is quite small.

The data from this sample were used by McKinney (1982) in her analyses. The analyses reported here do not duplicate those she reported.

Sample 2. The second sample is the result of an attempt to get data from a random sample of single women who were not affiliated with the University. Our intent was to see whether results obtained in the student sample could be generalized to nonstudents. In an earlier study (DeLamater and MacCorquodale, 1979), we had obtained a large nonstudent sample by randomly sampling residential telephone numbers from the directory. We employed the same procedure, with much less success. Student workers dialed 2,925 numbers; each number was dialed five times, varied by time of the day and day of the week. If the call was answered, we inquired whether we had reached a residence, and if so, whether any of the residents was a single woman between the ages of 18 and 23. We identified 125 eligible respondents. We were able to contact 100 of them. Of the 100, 37 refused to participate in the study. Thirty-three agreed to be interviewed, and were questioned by one of the interviewers used with sample 1. Thirty-five respondents agreed to complete a questionnaire version of the schedule and did so. With the exception of a few minor revisions, the questionnaire was identical to the interview schedule in the content and sequence of questions.

Sample 3. The third sample consists of women who came to a medical clinic to obtain birth control. We studied these women in the belief that the relationship between self-efficacy and contraceptive use might be particularly evident at the point when a woman seeks birth control. The cooperation of the campus Women's Clinic was enlisted. The nursing staff agreed to distribute questionnaires to each single woman who came to the clinic to obtain a prescription for birth control pills or for a diaphragm. [These were the methods sought by

virtually all of the women coming to this clinic.] If possible, the questionnaire was given to her when she arrived, and she was asked to fill it out and return it to the Clinic receptionist. Alternatively, she was also given a stamped, self-addressed envelope, and encouraged to complete the survey and mail it to the investigator. The questionnaire was similar to the one used with sample 2, with the addition of four questions at the beginning asking what method of birth control she wanted to obtain, and why she had decided to seek contraception at that particular time. The clinic staff distributed 100 questionnaires over a nine-month period; fifty-eight were completed and returned.

Neither sample 2 or 3 is a random sample of a known population. Furthermore, both are small. The impact of this is lessened by the fact that we are not interested in estimating parameters. Rather, the focus is on testing theoretical hypotheses; for this task the diversity of the three samples is a benefit.

RESULTS

Differences in self-efficacy.

The first hypothesis predicts that users of a specific birth control technique will perceive themselves as more efficacious at using that method than nonusers. We test this hypothesis by comparing the scores of users and nonusers on the self-efficacy items. First, we determined the distribution of techniques used in each sample. The question asked, "What birth control method(s) are you currently using?" The mean scores of users and nonusers were computed for each

method being used by at least ten women. The results are displayed in Table 1.

Insert Table 1 About Here

The mean scores on the efficacy expectation measures are shown in the first two columns of the Table. In the student sample, 31 women reported using birth control pills. Comparing these women with the rest of the sample (which includes both sexually active and sexually inactive women), the users' average rating of their ability to use oral contraceptives correctly and consistently are significantly higher than the means for nonusers. An additional 20 women reported relying on the diaphragm. Compared to all other women, the users rated themselves as significantly more able to use the diaphragm correctly and consistently. Interestingly, the absolute values of the average ratings by pill users are larger than those of diaphragm users; the diaphragm is in fact more difficult to use, since a woman must insert it before and remove it after each episode of intercourse, and may be less likely to be used consistently. Finally, ten women reported that their partner was using condoms. These women rated themselves significantly more able to use condoms correctly; there was not a significant difference in rated ability to use condoms consistently.

In the nonstudent sample, 46 percent of the women reported using birth control pills. Again, on the average, users rated themselves as significantly more able to use pills consistently; the difference in ratings between users and nonusers on the item regarding correct usage was not significant. Of interest is the fact that the average ratings

by women in the nonstudent sample are quite close in value to those by women in the student sample. The results for the clinic sample are shown in the bottom section of Table 1. The average ratings on the items assessing efficacy expectations do not differ significantly for users and nonusers of either oral contraceptives or condoms.

Attitudes toward Birth Control

Contraceptive behavior, i.e., selection and use of a particular method, may also be influenced by the person's attitudes with regard to particular methods. We measured four attitudes toward each method, how effective, safe, much hassle and easy to obtain the method is. We computed average ratings for users and nonusers on each item. These means are shown in the remaining four columns of Table 1. Student women who rely on pills, condoms or diaphragms rate their method as significantly more effective than nonusers of these three methods respectively. Users in the other two samples do not differ significantly from nonusers in the rating of effectiveness. The absolute value of the means parallel known differences between these methods. Thus, birth control pills are, on the average, rated 4.9 to 5.0 on effectiveness, the diaphragm is rated 4.9, and condoms are rated 4.3 and 4.4. With regard to safety, condoms are rated very safe (3.7, 3.9) by women who use them whereas oral contraceptives are rated from 2.4 to 2.7 on safety by users.

With regard to safety, in four of the six comparisons, users rate the method as significantly safer to use. Among students, users of pills and of the diaphragm rate the method as safer. Nonstudent women who use the oral contraceptive rate it as safer than nonusers. In the

clinic sample, users on the average rate the condom as safer than nonusers. Again, the differences in absolute values suggest that the women's perceptions are accurate; birth control pills are given substantially lower average safety ratings (2.02 to 2.74) than diaphragm (2.93, 3.55) or condoms (3.49 to 3.94). Users do not differ on the average from nonusers in the degree of hassle they perceive being involved in the use of these methods. Two of the six comparisons of ratings of how accessible a method is are significant. Student women who use the diaphragm perceive it as more accessible than nonusers. Nonstudents who use pills perceive them as more accessible.

In support of hypothesis 1, the results indicate that users of a contraceptive method have higher efficacy expectations. In addition, users tend to have more positive attitudes regarding the safety and effectiveness of the method they use.

Self-Efficacy and the Use of Birth Control Pills

Oral contraception is the only method reported by at least ten women in each sample. We will continue the analysis of the effect of self-efficacy on the use of specific methods by considering the correlates of use of birth control pills. The correlation coefficients for each of the three samples are presented in Table 2. The last column reports the correlations obtained when the data from the three samples were combined. For the student and nonstudent samples, the dependent variable is current use of pills (scored 0 or 1). For the clinic sample, the dependent variable is coming to the clinic to get a prescription for oral contraceptives. [1]

Insert Table 2 About Here

An index of self-efficacy was constructed by summing the ratings for ability to use pills correctly and consistently, and dividing by two; thus, each item was weighted equally. The correlations for the self-efficacy index and use of oral contraceptives are shown in the first row of Table 2. In support of hypothesis 2, the values are all positive and significant. One of our measures of outcome expectancy, the belief that a behavior will produce the outcome, asked how much control the woman felt she had over pregnancy. Among both students and nonstudents, women who perceived less control were more likely to report using birth control pills. This relationship is also significant in the combined data set.

As noted earlier, Bandura identifies several influences on self-efficacy. One important influence is vicarious experience. We asked each woman how many of her three best friends used each method. As Table 2 indicates, friends' use of birth control pills is significantly correlated with reported use by the respondent, in both the student and nonstudent samples.

As noted in hypothesis 2, we want to assess the influence of self-efficacy net of other influences, to see whether self-efficacy is independently related to birth control use. Thus, it is important to include other influences in these analyses. One is the woman's attitudes toward the method. An index of attitude toward pills was obtained by summing the ratings on the four items (effectiveness, safety, hassle and access) and dividing by four. Again, each item is equally weighted. In the student, nonstudent and combined data sets,

this index is significantly correlated with use.

A second influence is the woman's degree of concern about pregnancy (Luker, 1975; DeLamater 1982). Women who are more concerned about preventing pregnancy may use more effective contraceptive methods more consistently. The interview/questionnaire included a number of questions about pregnancy. One item asked how the woman would feel if she got pregnant; the response alternatives included very positive (scored "1"), positive, neutral, negative, very negative (scored "5"). A second question asked how she felt about pregnancy for herself; the alternatives ranged from "I'd like to be pregnant anytime" (scored "1") to "Pregnancy is not for me" (scored "5"). In the clinic sample, these two items are significantly correlated with wanting to obtain a prescription for birth control pills. These results suggest that, among women seeking birth control, those who are the most concerned about avoiding pregnancy select oral contraception as the preferred method, perhaps in spite of concern about its safety.

Jorgenson and his colleagues (1980) found that the relationship a woman has with her partner is an influential factor on her birth control use. The last item included in Table 2 deals with this relationship with her partner vis-a-vis contraceptive use (see Jorgenson, et al., 1980). We asked each woman, "When it comes to decisions about birth control, who has the final say?" The alternative answers ranged from "my partner always" through "we both do" to "I do always." Women who reported that they made decisions about birth control were more likely to use or be interested in using oral contraceptives in all four data sets.

The final step in the analysis is to assess the independent effects of these variables which are correlated with birth control use. The results of regression analyses are reported in Table 3.

Insert Table 3 About Here

The regressions were run using a stepwise procedure, in which the first variable entered is the one with the strongest relationship with the dependent variable, the second variable entered into the equation is the variable with the strongest relationship of those remaining, etc. Using this procedure, self efficacy with regard to birth control pills (selfbcp) was included in the equation for the clinic sample and the combined data. The relationship between self-efficacy and pill use was not strong enough in the other two samples to result in its inclusion in the initial equation. Accordingly, this variable was specified as the one to be entered first in the analyses for these two samples. This seems appropriate since we are interested in testing the hypothesis that self-efficacy is related to contraceptive use. In the analyses of the student data, the regression coefficient for the relationship between self-efficacy and use of oral contraceptives is significant. The coefficient in the nonstudent sample almost attains significance ($p=.0882$).

In the student sample, the regression coefficient for one other variable attains significance; it is the degree to which the woman perceives that she controls whether she gets pregnant (own control). The relationship is negative; women who perceive less control are more likely to use oral contraceptives. Thus, in this random sample it is the measures of efficacy and of outcome expectancy that are associated

with use. These results provide solid support for the second hypothesis.

In the nonstudent sample, a second variable is significantly associated with use, the locus of decision-making with regard to contraceptive use (decbc). Women who report greater influence over decisions are more likely to use oral contraceptives. The coefficient for own control is also significant, and negative. In the clinic sample, the second significant coefficient involves the woman's feelings about pregnancy (feifpreg). This is consistent with the correlational results noted above.

In the combined data, three variables are independently associated with the use of oral contraception. The first is self-efficacy. The second is perceived control over pregnancy. Third, women with more positive attitudes toward birth control pills, who perceive them as safer, more effective, less hassle to use and more accessible, are more likely to use them.

DISCUSSION

In general, the results support the two hypotheses which guided this investigation.

Hypothesis 1 predicted that users of a specific technique perceive themselves as significantly more efficacious than nonusers of that technique. This hypothesis was tested by comparing the mean self-efficacy ratings of users and nonusers of three methods. In six of the twelve comparisons, users rated themselves significantly more able to use the method correctly or consistently. The other test of

this hypothesis is provided by the correlation of self-efficacy with regard to use of oral contraceptives and use of birth control pills. In all three samples and the combined data, the correlation is positive; in the student and clinic samples and the combined data, the coefficients are highly significant.

The theory of self-efficacy asserts that perceptions of efficacy influence behavior. The data in the present study are cross-sectional, and therefore we cannot assess the directionality of the relationship. It may be that users of a method come to perceive themselves as efficacious. We can, however, conclude that the results are consistent with the theory; if we had found no relationship between self-efficacy and contraceptive use, the results would cast doubt on the theory.

Hypothesis 2 predicted that self-efficacy is related to birth control use net of other influences. This hypothesis was tested by regressing measures of several influences on reported use. The index of self-efficacy was significantly associated with use in the student and clinic samples and the combined data, and the relationship was almost significant in the nonstudent sample.

Of note is the finding that in the student sample, a random sample of 179 women, the regression analysis indicates that two variables were significantly associated with use of birth control pills. The two are the index of self-efficacy and the measure of outcome expectancy (degree of control over pregnancy). These are the two components specified by the theory as important influences on behavior.

Also of note is the direction of the relationship between the measure of outcome expectancy and birth control use. The theory predicts a positive relationship that persons who perceive themselves as able to control an outcome should be more likely to engage in relevant behaviors. In the analyses reported here, the relationship is consistently negative. In the student, nonstudent and combined data, women who perceive less control over pregnancy are more likely to use oral contraceptives. This relationship is highly significant in both the correlation (Table 2) and regression (Table 3) analyses. It may be that, in the case of the use of a mechanical or chemical birth control method, the true relationship is negative. Women who perceive a high degree of control over pregnancy may believe that they do not need to use such methods to prevent pregnancy. Alternatively, once a woman becomes a user of oral contraceptives, she may perceive that it is the method rather than her own activity that is preventing conception. The fact that there is no relationship between perceived control and interest in birth control pills in the clinic sample is consistent with the latter interpretation.

The results reported here have clear implications for the design of programs intended to increase the use of contraceptives by single women. We found that positive attitudes about the safety, effectiveness and accessibility of oral contraceptives, the diaphragm and condoms are related to use of these techniques; educational programs which deal with these (and other) methods should provide information regarding these attributes. The fact that self-efficacy is related to use suggests the utility of programs designed to familiarize people with specific methods and their use. The impact of

educational programs might be increased by providing participants with an opportunity to examine the devices and providing detailed instruction regarding their use. Providing participants with the opportunity to practice the use of a device such as the diaphragm or condom should lead to a significant increase in perceptions of efficacy since it involves direct experience.

NOTE

1. It has been suggested that this is a measure of behavioral intention, not behavior. In studies of birth control use, intention is typically measured by asking a woman what she plans to do in the future. The women in this sample came to the clinic to get a prescription for birth control pills or a diaphragm, i.e., they are engaging in behavior which is an integral part of using these methods of birth control.

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TABLE 1

Mean Attitudes toward Methods by Users and Nonusers

	Efficacy Correct (4=Very)	Expectation Consistent (4=Very)	Effective (5=100%)	Safe (4=Very)	Hassle (4=Very)	Access (5=Easy)
STUDENT (N=179)						
Birth Control Pills						
Users (31)	3.81**	3.84**	5.00*	2.39*	1.39	4.73
Nonusers (136)	3.42	3.40	4.86	2.02	1.62	4.55
Condoms:						
Users (10)	3.30*	2.90	4.40*	3.70	2.50	4.90
Nonusers (167)	2.78	2.60	3.83	3.49	2.71	4.59
Diaphragm						
Users (20)	3.50**	3.35*	4.90**	3.55**	2.25	4.75**
Nonusers (157)	2.66	2.93	4.38	2.93	2.56	4.20
NONSTUDENT (N=68)						
Birth Control Pills						
Users (31)	3.81	3.87*	4.93	2.74**	(4=Not at all) 3.67	4.74*
Nonusers (37)	3.57	3.54	4.86	2.10	3.40	4.40
CLINIC SAMPLE (N=54)						
Birth Control Pills						
Users (26)	3.96	3.92	4.96	2.50	1.30	4.65
Nonusers (28)	3.79	3.79	4.93	2.60	1.57	4.61
Condoms:						
Users (19)	3.47	3.00	4.26	3.94**	2.84	4.95
Nonusers (35)	3.14	3.00	4.17	3.63	3.11	4.97

* p<.05

** p<.01

TABLE 2

Correlates of Using Birth Control Pills

VARIABLE	Students (Use pills)	Nonstudents (Use pills)	Clinic (Int pills)	Combined Data
Self-efficacy re pills	.2768 p=.005	.2075 p=.07	.3871 p=.002	.3331 p=.000
Own control over pregnancy	-.3593 p=.000	-.3884 p=.002		-.2824 p=.000
Friends use pills	.4590 p=.000	.2887 p=.019		
Attitude toward pills	.2814 p=.004			.2175 p=.001
Reactions to pregnancy			.2299 p=.049	
Feel if pregnant			.3326 p=.007	
Decisions about birth control	.2459 p=.013	.4169 p=.002	.4140 p=.002	.2368 p=.001

Table 3

Regressions on Use Birth Control Pills

Variable	B	SE B	Beta	T	Sign. T
STUDENT SAMPLE					
Selfbcpc*	.16098	.067168	.248483	2.397	.0190
Own control	-.00503	-.001612	-.323705	-3.122	.0025
(Constant)	.094272	.271320		.347	.7292
Multiple r	.43597		Standard Error		.44410
R Square	.19007		Adj. R Square		.16904
NONSTUDENT SAMPLE					
Selfbcpc*	.306632	.220788	.241769	1.751	.0882
Decbc	.222124	.083359	.367233	2.665	.0114
Own Control	-.006027	.002420	-.338485	-2.491	.0174
(Constant)	-1.478794	.859385		-1.721	.0936
Multiple r	.58126		Standard Error		.41259
R Square	.33786		Adj. R Square		.28417
CLINIC SAMPLE (Int pill)					
Feifpreg	.134016	.037642	.426144	3.560	.0009
Selfbcpc	.222440	.065172	.408528	3.413	.0014
(Constant)	.499466	.263975		1.892	.0654
Multiple r	.66212		Standard Error		.19349
R Square	.43840		Adj. R Square		.41166
COMBINED DATA SET					
Selfbcpc*	.243545	.060305	.314002	4.039	.0001
Own Control	-.003853	.001296	-.224304	-2.973	.0035
Attbcpc	.245175	.104450	.181458	2.347	.0203
(Constant)	-1.028831	.410071		-2.509	.0133
Multiple r	.48432		Standard Error		.43430
R Square	.23457		Adj. R Square		.21781

*Selfbcpc entered first

Mailing Address:

Center for Demography and Ecology
University of Wisconsin
1180 Observatory Drive
Madison, Wisconsin 53706-1393
U.S.A.