



<http://www.bgsu.edu/organizations/cfdr/main.html>

Phone: (419) 372-7279

cfdr@bgnet.bgsu.edu

Bowling Green State University

Working Paper Series 02-11

Contraceptive Self-Efficacy: Does It Influence Adolescents' Contraceptive Use?

Monica A. Longmore

Wendy D. Manning

Peggy C. Giordano

Jennifer L. Rudolph

Contraceptive Self-Efficacy: Does It Influence Adolescents' Contraceptive Use?*

Monica A. Longmore

Wendy D. Manning

Peggy C. Giordano

Jennifer L. Rudolph

Bowling Green State University

Word Count: 8,528

Total Number of Tables: 4

Key Words: contraceptive self-efficacy, adolescent contraceptive use

*This research is supported by a grant from the National Institute of Child Health and Human Development (grant HD36223). Please address correspondence to Monica A. Longmore, Department of Sociology and the Center for Family and Demographic Research, Bowling Green State University, Bowling Green, Ohio 43403, mseff@bgnnet.bgsu.edu. This research is based on data from the Add Health project, a program project designed by J. Richard Udry (PI) and Peter Bearman, and funded by grant P01-HD31921 from the National Institute of Child Health and Human Development to the Carolina Population Center, University of North Carolina at Chapel Hill, with cooperative funding participation by the National Cancer Institute; the National Institute of Alcohol Abuse; Institute on Drug Abuse; the National Institute of General Medical Sciences; the National Institute of Mental Health; the National Institute of Nursing Research; the Office of AIDS Research, NIH; The Office of Behavior and Social Science Research, NIH; the Office of the Director, NIH; the Office of Research on Women's Health, NIH; the Office of Population Affairs, DHHS; the National Center for Health Statistics, Centers for Disease Control and Prevention, DHHS; the Office of Minority Health, Office of Public Health and Science, DHHS; the Office of the Assistant Secretary for Planning and Evaluation, DHHS; and the National Science Foundation. Persons interested in obtaining data files from The National Longitudinal Study of Adolescent Health should contact Add Health Project, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516-3997 (email: addhealth@unc.edu).

Contraceptive Self-Efficacy: Does It Influence Adolescents' Contraceptive Use?

This research investigates the relationship between contraceptive self-efficacy and contraceptive use, measured one year later, among adolescent boys and girls. Data are obtained from the two waves of the restricted use sample of the National Longitudinal Study of Adolescent Health (n = 3,577). Employing multiple regression and logistic regression, we examine whether demographic and background characteristics influence contraceptive self-efficacy, and whether contraceptive self-efficacy increases the likelihood of contraceptive use. We find that adolescents who are female, older, live with step-parents, and whose mothers approve of contraceptive use report higher contraceptive self-efficacy, while adolescents whose mothers did not complete high school report lower contraceptive self-efficacy. Results partially support the expectation that adolescents with higher contraceptive self-efficacy act accordingly by using contraceptives.

Contraceptive Self-Efficacy: Does It Influence Adolescents' Contraceptive Use?

During adolescence, many youth become involved in sexual relationships. National surveys show that more than half of all students in grades 9-12 report that they have had sexual intercourse (Warren et al. 1998). Moreover, although the teenage pregnancy rate declined during the 1990s, about 900,000 girls under age twenty become pregnant every year (Darroch and Singh 1999). Inconsistent, ineffective or non-use of contraceptives are risk factors for unintended pregnancy (Moore et al. 1995). Darroch and Singh (1999) report that only 83 percent of sexually active girls surveyed in the National Survey of Family Growth (NSFG) used a contraceptive method the last time they had sex. About 30 percent of these adolescents used condoms. Ku, Sonenstein, and Pleck (1994) report that 44 percent of male teens from the National Survey of Adolescent Males (NSAM) used condoms during their most recent sexual encounter. The inconsistent or non-use of condoms combined with the relatively short duration of adolescents' relationships, which increases the potential opportunities for more sex partners (Longmore, Manning, and Giordano 2001), enhances the risk of exposure to HIV infection (e.g., Miller, Forehand, and Kotchick 1999; Santelli et al. 1998; Warren et al. 1998).

The influence of contraceptive self-efficacy typically is not examined in studies of adolescents' contraceptive use. Most large-scale studies using national probability samples are conducted for monitoring purposes and thus emphasize the demographic correlates of contraceptive use and contraceptive knowledge. Contraceptive self-efficacy, however, is important for understanding contraceptive behavior for two reasons. First, self-efficacy motivates behavior and, thus, is critical for behavioral change. Studies indicate that adolescents

are not likely to use contraception just because contraceptive information and methods are available (Alan Guttmacher Institute 1994; Family Health International 1997). Rather, *motivation* is necessary to translate knowledge into action. Bandura (1992a, 1992b) argues that to achieve self-directed change, people not only need reasons to alter risky habits, but they also must believe in their ability, or efficacy, to exercise personal control. Second, unlike demographic characteristics associated with contraceptive use, self-efficacy is malleable. Therefore, contraceptive use theoretically may be enhanced by participation in intervention programs that promote self-efficacy (Bandura 1992a, 1992b; Coyle et al. 2001; Gilchrist and Schinke 1983).

We examine, prospectively, adolescents' reports of contraceptive self-efficacy and contraceptive behavior. We extend prior work by examining whether contraceptive self-efficacy distinguishes contraceptive users from non-users. In the next sections we describe the theoretical underpinnings of contraceptive self-efficacy, i.e., self-efficacy, and provide a rationale for why: (a) demographic characteristics should affect contraceptive self-efficacy, and (b) contraceptive self-efficacy should affect adolescents' contraceptive use. We analyze the two waves of the National Longitudinal Study of Adolescent Health (Add Health). To date, studies have not examined adolescent contraceptive self-efficacy and reported contraceptive use using longitudinal data from a large-scale national probability sample.

BACKGROUND

Self-Efficacy

According to Gecas (1989), the theoretical developments concerning self-efficacy stem

from two fields. First, self-efficacy defined as the motivation to perceive oneself as a cause of one's behavior comes from cognitive and developmental psychology. Scholars such as De Charms (1968), Deci (1975), and Brehm (1966) emphasize that individuals strive to be the origins of their behavior, to be self-determining, and to resist constraints.

The second, and perhaps better known, line of research dealing with self-efficacy comes from social learning theory and concerns expectations and causal attributions. Bandura's (1992a, 1992b) work on self-efficacy expectations suggests that beliefs about personal causation are consequential for behavior. Individuals' expectations about whether they can execute specific activities, which reflect their personal control over a situation, affect their willingness to initiate and persevere with such activities.

Drawing on both of these perspectives (i.e., the motivation to perceive oneself as self-determining, and the expectation that one can execute specific tasks), we view self-efficacy in terms of individuals' perceptions of agency, mastery, control, and competence in dealing with the social world (Gecas 1989). We concur that it refers to the extent to which individuals believe they can execute the behaviors needed to produce desired outcomes. As such, self-efficacy enhances striving behavior because individuals with higher self-efficacy will believe that tasks necessary to change a situation are achievable (Gecas and Schwalbe 1983).

Consistent with the causal attribution approach, however, we view self-efficacy as behaviorally specific. We are referring to cognitive and behavioral efforts to manage specific demands as opposed to global perceptions of efficaciousness. (The latter is perhaps more consistent with the theoretical developments in cognitive and developmental psychology). Behaviorally specific measures such as contraceptive self-efficacy are also consistent with the

literature on attitude-behavior relationships, which suggests that attitudes and behaviors should be measured at comparable levels of specificity (Schuman 1995).

Positive associations between self-efficacy and adult behavior are well documented (e.g., Bandura 1992a, 1992b, 1997; Gecas 1989; Schwarzer 1992). Much research examines the effects of health self-efficacy, particularly in regard to the health belief model, on adult health. Regarding adolescents, specifically, researchers have examined the influence of health self-efficacy on physical exercise and health habits (e.g., Fruin, Pratt, and Owen 1992), academic self-efficacy on academic development (e.g., Zimmerman, Ganong, and Ellis 1995), sense of competence on success in competitive sports (e.g., Weiss, Wiese, and Klint 1989), and competence on adaptation to stressful events (e.g., Kliewer 1991; Sternberg and Kolligian 1990). Researchers have also examined adolescents' contraceptive self-efficacy and contraceptive behavior (e.g., Brafford and Beck 1991; Kasen, Vaughan, and Walter 1992; Levinson 1986; Schwarzer and Fuchs 1996).

Contraceptive Self-Efficacy

Contraceptive self-efficacy refers to the conviction that one can control sexual and contraceptive situations to achieve contraceptive protection. It refers to motivational barriers or enhancers to contraceptive use among sexually active and potentially sexually active individuals. Consistent with Levinson (1986), we argue that the unplanned nature of much adolescent sexual activity results from contraceptive inefficaciousness. Levinson argues that adolescents' lack of preparation and active decision-making regarding contraception indicates that sexual behavior is being denied, perhaps unconsciously. Consequently, the associated self-protective mechanisms regarding contraceptive responsibility are also denied.

Contraceptive inefficaciousness is exemplified in studies that examine reasons why sexually active adolescents, not wanting a pregnancy, fail to use contraception. Common reasons reported for not using contraception include “we did not plan to have sex,” “sex just happened,” or “planning ahead spoils the fun of sex” (e.g., Sable, Libbus, and Chiu 2000; Stevens-Simon et al. 1996). Moreover, many sexually active adolescents, who report not wanting a pregnancy, fail to use contraceptives even when contraceptive information and materials are available (Alan Guttmacher Institute 1981; Family Health International 1997), thus supporting our contention that knowledge alone does not result in contraceptive behavior.

Few studies examine adolescents’ reports of self-efficacy and contraceptive use. Moreover, the majority focus on condoms, perhaps because condom use is associated with AIDS preventive behaviors, as well as being the primary contraceptive method at first intercourse among adolescents. For example, Schwarzer and Fuchs (1996) report that perceived self-efficacy predicted condom use for both males and females. Similarly, Kasen et al. (1992) examining 181 tenth graders in New York City find that perceived self-efficacy is associated with consistent condom use over the past year.

Regarding studies that specifically measure condom self-efficacy, Rosenthal, Moore, and Flynn (1991) find that efficacy pertaining to the negotiation of condom use predicted safer sex practices among adolescents. Brafford and Beck (1991) find that college students who experienced sexual intercourse using condoms had higher condom self-efficacy scores than those who did not use condoms. This suggests that prior success in using condoms increases condom self-efficacy. Further, inconsistent condom users had lower condom self-efficacy scores than the consistent condom users. Finally, in a review of nine studies of predictors of condom use,

DiClemente (1992) reports that condom self-efficacy is associated with consistent condom use.

In sum, evidence suggests that perceived self-efficacy and condom self-efficacy are associated with condom use. Yet, it is not clear whether similar findings would be found using longitudinal as opposed to cross-sectional or retrospective data. Moreover, prior work is limited often to small-scale studies, thus nationally representative data will provide a more complete understanding of contraceptive self-efficacy and contraceptive use. In the next sections we discuss location in the social structure and self-efficacy, and then discuss why we expect a relationship between demographic characteristics and contraceptive self-efficacy.

Demographic Characteristics, Self-Efficacy, and Contraceptive Self-Efficacy

What is the relationship between demographic characteristics and self-efficacy? Demographic characteristics reflect the individual's position in society, which affects self-attributions of competence. Thus, efficacy is associated positively with location in the social structure (Gecas and Schwalbe 1983). Opportunities to engage in efficacious actions, and to make self-attributions regarding competence, depend on constraints on individual autonomy. Demographic characteristics often shape the degree of control experienced and the resources available for the individual to produce intended outcomes. Individuals who hold low power positions have fewer opportunities to develop perceptions of efficaciousness because such positions limit their freedom of action.

Although studies have not examined whether demographic characteristics affect contraceptive self-efficacy, there is support for the idea that social structure influences self-efficacy. For example, studies using longitudinal data, including the Panel Study of Income Dynamics (PSID), find that Blacks, especially women, report lower self-efficacy than whites and

smaller increases in efficacy scores even when financial situations improve (Corcoran et al. 1985; Gordon 1969; Hughes and Demo 1989; Hunt and Hunt 1977). Lower levels of education also are related to lower self-efficacy (Downey and Moen 1987; Duncan and Morgan 1981; Hill et al. 1985). Likewise, Gecas and Schwalbe (1983) persuasively argue that self-efficacy is related positively to social class. These studies and the theoretical arguments point to relationships between demographic indicators of location in the social structure (e.g., gender, race, education, social class) and self-efficacy.

Studies also show that demographic characteristics influence contraceptive use. Scholars using national, regional, and clinical samples of adolescents typically examine the influence of age, gender, race/ethnicity, religion/religiosity, and parents' education on contraceptive use (e.g., Darroch and Singh 1999; Forrest and Singh 1990; Gleit 1999; Katz et al. 2000; Lowenstein and Furstenberg 1991; Mosher 1990; Sonenstein, Pleck, and Ku 1989). Evidence suggests that younger adolescents who are sexually inexperienced, who report higher religiosity, and whose parents report lower educational attainment are ineffective contraceptive users or non-users. It is also likely that adolescent girls, in general, are more consistent contraceptive users, but that boys, specifically, are more consistent condom users. The findings on race, however, are not clear with results depending on whether researchers examine first versus most recent sexual experience, type of contraceptive method, and consistent versus most recent contraceptive use.

The Present Study

Given the focus on demographic predictors of adolescents' contraceptive use in prior research and Gecas and Schwalbe's (1983) theoretical explanation for the development of self-efficacy, which emphasizes its social structural underpinnings, we examine how demographic

variables influence contraceptive self-efficacy. By examining contraceptive self-efficacy, we add to the theoretical and empirical work on how social structure might influence a specific kind of efficacy. Contraceptive self-efficacy is an important self-attribution to examine because it has far reaching consequences for sexually active adolescents in terms of motivating behavior that reflects contraceptive responsibility. We hypothesize the following:

Hypothesis 1. Demographic variables influence contraceptive self-efficacy such that males, older adolescents, Whites compared with Blacks and Hispanics, adolescents whose mothers are better educated, and adolescents who report less religious involvement will report higher contraceptive self-efficacy.

Building on Levinson's (1986) study, we also expect that low contraceptive self-efficacy will manifest in failing to use contraception. With few exceptions (e.g., Jones, Paul, and Westoff 1980; Levinson 1986; Rosenthal et al. 1991), researchers have not examined contraceptive self-efficacy and contraceptive use among adolescents. The studies that examined this relationship are based on cross-sectional or retrospective data. Thus, the effects of contraceptive self-efficacy and contraceptive use may be confounded. Moreover, some of the most theoretically guided studies are single-sex studies (e.g., Levinson 1986). We expect that contraceptive self-efficacy, measured prospectively, will predict contraceptive use, and more specifically, condom use.

We are interested especially in condom use because condoms are the primary contraceptive method used by adolescents, particularly adolescents having sex for the first time. Moreover, condoms are used in the immediate sexual situation, a situation likely to be influenced by contraceptive self-efficacy because it requires the actual negotiation, appearance, and use of a condom. These are actions that require a sense of efficacy.

In answering our second research question: "Does contraceptive self-efficacy influence contraceptive use," we hypothesize the following:

Hypothesis 2. Net of the demographic and background variables, contraceptive self-efficacy, measured prior to sexual activity, is associated positively with subsequent condom use (versus using no method, as well as compared with using chemical/hormonal methods) during most recent sexual intercourse.

METHODS

Data

The National Longitudinal Study of Adolescent Health (Add Health) is a recently collected, school-based, multi-wave data collection effort that focuses on adolescent health behaviors. (More details on the sample can be found in Bearman, Jones, and Udry 1997). These data are appropriate for our purposes for two reasons. First, prior work on contraceptive self-efficacy has focused on small-scale, regional data collection efforts and has not relied on nationally representative sources (e.g., Levinson 1986). Second, the data include comprehensive measures of contraceptive self-efficacy, sexual activity, demographic characteristics, a variety of background characteristics such as dating experience, and contraceptive use. Questions about sexual activity were asked using an audio computer-assisted self-interview device in which adolescents enter responses to questions that they see on the laptop computer screen and hear on an audiotape using headphones, thus providing greater privacy.

From the Add Health, we use the two waves of the restricted use sample of in-home surveys of 18,924 adolescents who represent adolescents enrolled in grades 7 through 12 in 1994 (Chantala 2001). The second wave of data was collected one year later, and in-home interviews were completed with 88.2 percent of the students selected for re-interview.

For the purposes of our analyses, we eliminate adolescents who were not re-interviewed (n=5,354). Next, we removed respondents who either did not have sex between interview waves,

or were missing data on whether they had sex between waves ($n = 9,254$). These two steps initially limit our sample size to 4,316 adolescents. We then excluded 79 respondents who did not report valid data on contraceptive use at the wave 2 interview. We also eliminated 660 respondents who were either missing two or more items used to create the contraceptive self-efficacy scale or were less than 15 years old and not asked such items. Thus, the analytical sample is composed of 3,577 respondents who are at least age 15.

Measures

The dependent variables. *Contraceptive self-efficacy* is measured using a three-item scale. This variable is measured at wave 1. Respondents are asked: (1) “If you wanted to use birth control, how sure are you that you could stop yourself and use birth control once you were highly aroused or turned on;” (2) “How sure are you that you could plan ahead to have some form of birth control available;” and (3) “How sure are you that you could resist sexual intercourse if your partner did not want to use some form of birth control?” The response categories for each item are: very sure [1], moderately sure, neither sure nor unsure, moderately unsure, and very unsure [5]. Responses are reverse coded so that higher scores indicate greater contraceptive self-efficacy. A sixth response category was provided in the original questionnaire so that respondents could indicate that they never plan to use birth control. Only a small number of respondents ($n = 52$) indicated resistance to contraceptive use for two or more of the indicators. We coded these few respondents as missing on the contraceptive self-efficacy scale. Following procedures used by Longmore and DeMaris (1997) in constructing similar social psychological scales, we construct a contraceptive self-efficacy score for every respondent who recorded valid responses for at least 67 percent of the items (two of the three). We calculate the

scale score as the mean of the items answered, multiplied by three. The contraceptive self-efficacy scores range from 3 to 15, with 15 indicating maximum contraceptive self-efficacy. The alpha reliability of the scale in the current sample is .61.

The second dependent variable is the *type of contraceptive used* by adolescents at most recent intercourse, including those whose most recent activity was also their first sexual experience. This variable is measured at wave 2. We first classify each adolescent as a contraceptive user or non-user at most recent sexual intercourse. Among contraceptive users, we classify three methods: chemical/hormonal, condoms, and other. The chemical/hormonal methods (the pill, Norplant, and Depo-Provera) are effective at preventing pregnancy, but ineffective at preventing the transmission of infection. Condoms are less effective at preventing pregnancy, but most effective at preventing sexually transmitted infections. Other methods include withdrawal or rhythm and over-the-counter contraceptive foams and jellies, which are better options than using no contraception, but are largely ineffective at preventing pregnancy as well as infection. For multivariate analyses, we create a variable with three categories of contraceptive use – nothing, condom, or non-condom (this category combines chemical/hormonal and other methods together).

The independent variables. We include gender, age, race, parental education, and religious involvement at wave 1 as demographic variables. *Gender* is a dichotomous variable with males coded as 1 and females as 0. Adolescent's *age* at the time of the first interview is calculated from the adolescent's reported birth date and the interview date. *Race/ethnicity* is self-reported. Response categories include White non-Hispanic, Black non-Hispanic, Hispanic, and

other. For multivariate analyses we create three dummy variables with White non-Hispanic as the contrast category.

Consistent with the literature (e.g., Mosher and McNally 1991), we measure parental education using *mother's education* level. We initially drew the information about mother's education from the adolescent's questionnaire, but for 394 respondents this information is missing. Rather than delete these cases, we substitute the mother's report of her education level or the adolescent's report of father's education level for 306 cases, and the modal score of education for the remaining 88 missing cases. The four response categories for mother's education are less than 12 years of school, 12 years of school, 13 to 15 years of school, and 16 or more years of school. For multivariate analyses, we create three dummy variables with an education level of 12 years as the contrast category.

Religious involvement (Mosher and McNally 1991; Studer and Thornton 1987) is based on respondent's self-report of having attended religious services in the past year either once a week or more [4], once a month or more, less than once a month, or never [1]. Respondents who report that they have no religion are coded as 1 on religious involvement (which is equivalent to never attending services).

Based on a review of the other correlates of adolescents' contraceptive use (e.g., Dorius, Heaton, and Steffen 1993; Hogan and Kitagawa 1985; Miller and Moore 1990), we examine the following background variables: prior sexual experience, family structure, logged household income, dating experience, exposure to sex education, and perception of mother's approval of contraceptive use. *Prior sexual experience* is measured with the following question: "Have you ever had sexual intercourse? When we say sexual intercourse, we mean when a male inserts his

penis into a female's vagina." Response categories are no or yes. If respondents answered yes, they were then asked the month and year of their first sexual experience. Based on their reports of having had sex, and the dates of first sexual intercourse, we establish whether the sexual experience occurred prior to contraceptive use measured at wave 2.

Type of *family structure* (e.g., McLanahan and Sandefur 1994) is measured using the adolescent's report of who is living in their household and their relationship to the adolescent at wave 1. Response categories are: biological parents (households with both biological parents), step-parent (households with one biological parent and a step-parent), single parent (households with only one biological parent), and other (households with some other situation, such as grandparents only or foster parents). For multivariate analyses we create three dummy variables with biological parents as the contrast category.

Consistent with past research (e.g., Wu and Martinson 1993), we control for economic well-being using *logged household income* in wave 1. However, 809 respondents were missing information for this variable, so we substitute the mean for these cases. A dichotomous variable, *missing income*, marking these cases was created to test for the effect of substituting the mean for missing income.

We control for currently dating, as well as having ever dated, assuming that individuals who date are exposed to the opportunity for sexual activity more often (Herceg-Baron et al. 1990). Using the adolescent's wave 1 report of dating or participating in dating behaviors (i.e., holding hands, kissing, and telling each other "I love you"), we code *dating status* as (1) never dated, (2) has dated (but not currently dating), and (3) currently dating. For multivariate analyses, we create two dummy variables with never dated as the contrast category.

We measure exposure to *sex education* with two items. Respondents are asked: “Please tell me whether you have learned about each of the following things in a class at school.” These topics included pregnancy (yes/no) and AIDS (yes/no). We create a dichotomous variable with 0 indicating the response of no for both questions, and 1 indicating the response of yes for either or both questions.

Mother’s approval of contraceptive use is measured with one item. Adolescents are asked “How would she [mother] feel about your using birth control at this time in your life?” Responses ranged from strongly disapprove [1] to strongly approve [5], thus a higher score on this variable indicates that the adolescent perceives their mother as approving of contraceptive use at this time in the adolescent’s life.

Statistical Analysis

The multivariate analyses are based on multiple regression and logistic regression. All multivariate models are estimated using the STATA program to account for sampling design effects (Chantala and Tabor 1999). First, we test hypothesis 1 by using multiple regression to estimate the effects of demographic and background variables on contraceptive self-efficacy, all of which are measured at wave 1 (Table 2).

Next, we use logistic regression to estimate models that include the effects of demographic and background variables, measured at wave 1, on type of contraceptive method chosen at wave 2 (Table 3). We then examine the same models with the additional effect of contraceptive self-efficacy (Table 4). As stated earlier, because condoms are the primary method used by adolescents, we are interested in comparing condom use versus using other methods or using no method. For the multivariate analyses, the categories compared are condom versus

nothing, a non-condom method (i.e., chemical/hormonal or other) versus nothing, and condom versus non-condom method. This classification of the dependent variable allows inclusion of all respondents in the multivariate analyses. These models test hypothesis 2 regarding the effect of contraceptive self-efficacy, net of demographic and background variables, on contraceptive method used.

We note that preliminary analyses included interaction effects. Specifically, prior research on condom self-efficacy suggests that previous experience with condoms bolstered condom self-efficacy. We examined whether timing of first intercourse interacted with contraceptive self-efficacy. It is possible that adolescents who experienced first sexual intercourse prior to the first interview, and thus had the opportunity to use contraception, could have differing contraceptive self-efficacy. However, the interaction is not significant, so we do not include it in these analyses (table available from the authors).

RESULTS

Univariate Descriptions

Percentages and means for all variables are shown in Table 1. The sample mean of 12.7 (theoretical range is 3 – 15) on the contraceptive self-efficacy scale suggests that contraceptive self-efficacy is relatively high and consistent with individuals' bias toward thinking well of themselves (see Gecas 1991 for discussion of the self-esteem motive). Adolescent girls report a mean contraceptive self-efficacy score of 12.97 and boys report a mean of 12.18 (not shown in table).

Table 1 About Here

Regarding contraceptive use at the wave 2 interview, 27.5 percent of the adolescents report not using contraception at most recent sexual activity. Among the contraceptive users, 28.8 percent report using a chemical/hormonal method, 41.3 percent report using condoms, and 2.4 percent report using other contraceptive methods including withdrawal and over-the-counter contraceptive methods.

The sample is almost evenly divided by gender (48 percent males and 52 percent females), and the average age of respondents is 16.9 years. The majority of the sample is composed of White adolescents (64.4 percent), while 18.8 percent of the sample is Black, 10.7 percent is Hispanic, and 6.1 percent of the sample classify their race as other. Almost 40 percent of the adolescents' mothers have completed high school, 20.7 percent have some college, and almost equal percentages (i.e., 19.8 percent and 19.7 percent) have not completed high school or have more than 16 years of schooling, respectively. Respondents, on average, report attending religious services about once a month.

About 19 percent of the adolescents report no prior sexual experience, leaving 80.9 percent who report some prior experience. The majority of adolescents report living with two biological parents (44 percent) or a single parent (35.3 percent). Of the rest, 11.8 percent live with step-parents, and 9 percent live in a family structure other than those mentioned. About 58 percent of the respondents report at wave 1 that they are currently dating, 33.1 percent have dated in the past but are not currently dating, and 8.8 percent have never dated. A large majority of adolescents (96 percent) report having learned about either pregnancy or AIDS, or both, in a class at school. Overall, adolescents do not perceive their mothers as having a high level of approval regarding the adolescent using contraception at this time in his or her life.

Multivariate Analyses

Contraceptive Self-Efficacy. Hypothesis 1 states: Demographic characteristics influence contraceptive self-efficacy such that males, older adolescents, Whites compared with Blacks and Hispanics, adolescents whose mothers are better educated, and adolescents who report less religious involvement will report higher contraceptive self-efficacy.

Table 2 reports the cross-sectional multiple regression estimates of the effects of demographic and background variables on contraceptive self-efficacy at wave 1. First, adolescent girls report higher contraceptive self-efficacy than do boys. Second, contraceptive self-efficacy increases with age. Third, adolescents whose mothers did not complete high school report lower contraceptive self-efficacy. Apart from our expected findings in hypothesis 1, we find that adolescents who live with step-parents and who perceive their mothers as approving of their use of contraception at this time report higher contraceptive self-efficacy.

In sum, we find partial support for hypothesis 1 in that age and mother's education are positively associated with adolescents' contraceptive self-efficacy. Contrary to expectations, girls report higher contraceptive self-efficacy, and race/ethnicity and religious involvement are not associated significantly with contraceptive self-efficacy.

Table 2 About Here

Type of Contraceptive Used. Hypothesis 2 states: Net of the demographic and background variables, contraceptive self-efficacy, measured prior to sexual activity, is associated positively with subsequent condom use. We begin by first examining the effects of only the demographic and background variables on contraceptive use, shown in Table 3.

Table 3 About Here

With regard to demographic and background predictors of contraceptive use, model 1 shows that males, Blacks, and adolescents with no prior sexual experience have higher odds of using condoms versus using nothing. Adolescents who live in single parent or other family structures have lower odds of using condoms. Model 2 shows that adolescent girls and adolescents who perceive their mothers approve of contraceptive use have higher odds of choosing a non-condom method versus no method, while adolescents who are not currently dating have higher odds of using nothing versus a non-condom method. Finally, as shown in Model 3, males, adolescents with no prior sexual experience, and adolescents not currently dating have higher odds of using condoms versus using a non-condom method. On the other hand, being in a family structure defined as other and perceiving your mother as approving of contraceptive use lowers the odds of an adolescent using a condom versus a non-condom method.

What about the effect of contraceptive self-efficacy on contraceptive use? Table 4 shows the results of adding contraceptive self-efficacy along with the demographic and background variables in predicting type of contraceptive used. Results in Model 1 provide partial support for hypothesis 2 that contraceptive self-efficacy increases the odds of using condoms, net of the demographic and background variables. Notably, contraceptive self-efficacy does not explain away the effects of the demographic variables. The demographic and background variables that predict condom use versus using nothing are consistent with the findings in Table 3. Specifically, boys, Blacks, and adolescents with no prior sexual experience have higher odds of using condoms, while adolescents who report their living situation as other report lower odds of condom use.

Table 4 About Here

Model 2 shows the effects of contraceptive self-efficacy and background variables on the odds of using a non-condom method versus nothing. The results indicate that adolescents with higher contraceptive self-efficacy have higher odds of using a non-condom method versus no method of contraception. Again, the effects of demographic and background variables did not change with the addition of contraceptive self-efficacy to the model. Girls and adolescents who perceive their mothers as approving of contraceptive use have higher odds of using a non-condom method versus nothing. On the other hand, adolescents who are not currently dating have lower odds of a non-condom method of contraception at most recent sexual intercourse.

Model 3 shows the effects of contraceptive self-efficacy, demographic, and background variables on choosing condoms versus non-condom methods. Contrary to our expectations, contraceptive self-efficacy does not significantly increase the odds of using a condom versus a non-condom method. As before, we continue to find that males, adolescents with no prior sexual experience, and adolescents not currently dating have higher odds of using condoms versus a non-condom method. And, adolescents who report a family living arrangement classified as other and who do not perceive their mother as approving of contraceptive use have lower odds of using condoms versus a non-condom method.

DISCUSSION

Given the focus on demographic predictors of adolescents' contraceptive use in prior research, we examined how demographic and background characteristics influence contraceptive self-efficacy. That is, do the correlates of adolescent contraceptive use also influence

contraceptive self-efficacy? We suspect that they might because prior theoretical and empirical research on self-efficacy emphasizes its social structural underpinnings. We contribute to this theoretical and empirical work, then, by extending the discussion to include how social structure might influence adolescents' contraceptive self-efficacy. This is important from a policy standpoint because the effects of demographic variables cannot be altered whereas contraceptive self-efficacy potentially is alterable.

We find that some of the demographic correlates of adolescent contraceptive use do similarly predict contraceptive self-efficacy. For example, being younger and having a mother with less than a high school education are associated with lower contraceptive self-efficacy. Both of these statuses are associated with less power and autonomy in American society. In contrast to what we expected, race/ethnicity and religious involvement do not have significant associations with contraceptive self-efficacy. Further, we find that girls, rather than boys, report higher contraceptive self-efficacy. We had hypothesized that boys would report higher contraceptive self-efficacy, in part, because we assumed that the sexual arena was one where girls would experience less control. However, prior research does show girls to be more consistent contraceptive users, which feasibly contributes to girls having higher contraceptive self-efficacy. This finding suggests that intervention efforts could be aimed at increasing contraceptive efficaciousness among adolescent boys who are already sexually active and not likely to be persuaded by abstinence only intervention programs.

We also explored the connection between other background variables as they are related to contraceptive self-efficacy. Not surprisingly, adolescents who reported their mother as approving of contraceptive use report higher contraceptive self-efficacy. It is quite plausible that

in these cases, the adolescent either gained contraceptive information from their mother or based on their mother's attitude felt empowered to seek out contraceptive information on their own. Relatedly, Levinson (1986) asserts that adolescents' lack of active decision-making in regard to sexual activity and contraceptive use reflects a denial of sexual behavior. The situation in which an adolescent has a mother who approves of that adolescent's use of contraception, and has somehow made this evident to the adolescent, appears to reflect a recognition of the adolescent's sexual behavior (or at least the *possibility* of sexual behavior). Hence, the door is opened for the adolescent to be active and efficacious in sexual behaviors. We argue then that adolescents would benefit from frank and open discussions with their parents about sexual activity. While the interaction of parents and adolescents within their home may not be wholly under the purview of intervention efforts, perhaps school-based and other sexual education programs would benefit from involving parents.

Interestingly, family structure findings suggest that adolescents who live in step-parent families report higher contraceptive self-efficacy. Based on our discussion of location in the social structure and autonomy, we anticipated that adolescents from two biological parent families would report higher contraceptive self-efficacy. We intend in our future research to try disentangling the relationship between family structure and contraceptive self-efficacy.

We also hypothesized that contraceptive self-efficacy, measured prospectively, would influence contraceptive use, net of the demographic and background variables. We find partial support for this hypothesis. Our analyses indicate that adolescents' contraceptive self-efficacy motivates type of contraceptive used, net of the effects of demographic and background variables, when predicting condom use versus using nothing and when predicting non-condom

methods versus using nothing. Generally, then, we can conclude that in these situations adolescents who think that they can be responsible for their sexual activity by using contraception are more likely to act accordingly, even under adverse circumstances, to achieve their goal. Adolescents who lack this conviction are less likely to persist in those behaviors needed to avoid unprotected sexual intercourse.

In contrast to what we expected, contraceptive self-efficacy does not significantly predict using condoms versus non-condom contraceptives. We asserted that condom use behavior may be more susceptible to contraceptive self-efficacy because using a condom entails situational negotiation and proactively having a condom, both of which point to a sense of efficacy. However, our findings suggest that contraceptive self-efficacy may not differentiate between type of contraceptive used, so much as it differentiates between using contraceptives or using nothing at all. In fact, other findings in our analyses suggest other variables are more key in determining which type of contraceptive an adolescent chooses to use. For example, we find that girls and adolescents whose mothers approve of contraceptive use have higher odds of choosing a non-condom method of contraception – a category that is dominated by users of chemical and hormonal methods that are highly effective in preventing pregnancy. In future studies, we are interested in distinguishing whether such efficacious adolescents may also be more prone to choosing use of more than one contraceptive at a time, thus increasing the level of protection provided (e.g., Ott et al. 2002).

As briefly mentioned before, our work potentially has implications for policy intervention. Beyond what we have already suggested, we mainly assert that it is not enough to provide contraceptive information. Bandura (1992b:90) states that: “The major problem is not

teaching people safer sex guidelines, which is easily achievable, but equipping them with skills that enable them to put the guidelines consistently into practice in the face of counteracting influences.” Forrest (1990) emphasizes that with regard to policy implications, earlier intervention, more extensive intervention, and provision of better contraceptive methods among sexually active adolescents are the routes by which most developed countries have achieved lower adolescent pregnancy rates. Our findings suggest the importance of adolescents’ contraceptive self-efficacy. We believe that it would be useful to incorporate attention to contraceptive self-efficacy within programs aimed at preventing adolescent pregnancy and HIV infection. In fact, a two-year risk-reduction school-based program in California and Texas has shown that students exposed to activities that strengthen beliefs in their ability to use condoms were likely to have protective sex (Coyle et al. 2001). The data, however, were collected from 1993-1996. We acknowledge that the recent focus on abstinence only sex education programs may make it more difficult to implement this suggestion in school districts that solely emphasize abstinence.

With regard to study limitations, we did not examine the role of prior sexual abuse on contraceptive use. Many girls' first sexual experiences are better termed sexual abuse (Alan Guttmacher Institute 1994; Small and Kerns 1993), and the exploitative nature of these experiences may affect adolescent girls’ contraceptive use. Stock et al. (1997) report that in their study of over three thousand adolescent girls, respondents who had been sexually abused were more than two times as likely to say they did not use contraception at last sexual intercourse. Similarly, Nagy, Adcock, and Nagy (1994) found that sexually abused girls reported higher levels of risky health behaviors and attitudes. Stevens-Simon and Reichart (1994) also report

that childhood sexual abuse may be associated with the desire for conception. Thus, it is possible that sexual abuse influences both contraceptive self-efficacy and subsequent contraceptive use. Our present data collection effort based on a regional sample of economically disadvantaged adolescents, many of whom are likely survivors of sexual exploitation, and future research will attempt to take into account the role of sexual abuse history on sexual and contraceptive behavior.

A second limitation of our study concerns the constraints of secondary data analysis. The Add Health data set does not include measures of general self-efficacy, so we could not examine the relationship between general self-efficacy and contraceptive self-efficacy. With regard to the theory of self-efficacy, Gecas and Schwalbe (1983) suggest that individuals need opportunities to engage in efficacious actions in order to develop a sense of efficacy. Building on this idea, an additional advantage of promoting contraceptive self-efficacy is that it could translate into a bolstering of general self-efficacy, which might provide protection against high-risk behaviors and promote positive behavioral change among adolescents. Further, we are interested in how varying levels of general self-efficacy may provide varying foundations or proclivities for contraceptive self-efficacy. For example, can an adolescent with low general self-efficacy be efficacious in regard to contraceptive use specifically?

However, we do note some puzzling findings with respect to self-efficacy theory. First, the addition of contraceptive self-efficacy does not diminish the importance of the demographic and background predictors. Moreover, those who report being more efficacious are not necessarily more likely to use contraceptives. For example, older adolescents report higher contraceptive efficacy, but are not more likely to use contraceptives. Mothers' higher education

is associated with greater contraceptive efficacy among adolescents, but not more contraceptive use. Similarly, some of the demographic and background variables are not related to contraceptive self-efficacy but are related to contraceptive use. For example, Blacks are no more efficacious than Whites, but they are more likely to use condoms versus no method at all. Prior sexual experience and dating experiences do not influence contraceptive efficacy, but they do influence contraceptive use. This indicates, then, a disjuncture between efficacy and behavior. This further suggests that the relationship between location in the social structure and efficacy is more complex and needs further investigation.

REFERENCES

- Alan Guttmacher Institute. 1981. *Teenage Pregnancy: The Problem That Hasn't Gone Away*. New York: Alan Guttmacher Institute.
- Alan Guttmacher Institute. 1994. *Sex and America's Teenagers*. New York: Alan Guttmacher Institute.
- Bandura, Albert. 1992a. "Self-Efficacy Mechanism: Psychobiologic Functioning." Pp.1-64 in *Self-Efficacy: Thought Control of Action*, edited by R. Schwarzer. Washington, DC: Hemisphere.
- 1992b. "A Social Cognitive Approach to the Exercise of Control Over AIDS Infection." Pp.89-116 in *Adolescents and Aids: A Generation in Jeopardy*, edited by R. J. DiClemente. Newbury Park, CA: Sage Publications.
- 1997. *Self-Efficacy: The Exercise of Control*. New York: W. H. Freeman and Company.
- Bearman, Peter S., Jo Jones, and Richard J. Udry. 1997. *The National Longitudinal Study of Adolescent Health: Research Design*. [On-line]. Available: URL:<http://www.cpc.unc.edu/projects/addhealth/resdesign/index/htm>.
- Brafford, Linda A. and Kenneth H. Beck. 1991. "Development and Validation of a Condom Self-Efficacy Scale for College Students." *Journal of American College Health* 39:219-25.
- Brehm, J. W. 1966. *A Theory of Psychological Reactance*. New York: Academic Press.

- Chantala, Kim. 2001. "Introduction to Analyzing Add Health Data." Prepared for the Add Health Users Workshop. Carolina Population Center, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Chantala, Kim and Joyce Tabor. 1999. "Strategies to Perform a Design-Based Analysis Using the Add Health Data." Carolina Population Center, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Corcoran, Mary, Greg J. Duncan, Gerald Gurin, and Patricia Gurin. 1985. "Myth and Reality: The Causes and Persistence of Poverty." *Journal of Policy Analysis and Management* 4:516-36.
- Coyle, K., K. Basen-Engquist, D. Kirby, G. Parcel, S. Banspach, J. Collins, E. Baumler, S. Carvajal, and R. Harrist. 2001. "Safer Choices: Reducing Teen Pregnancy, HIV, and STDs." *Public Health Reports* 116 (Suppl.):83-93.
- Darroch, Jacqueline E. and Susheela Singh. 1999. "Why Is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use." Occasional Report No. 1, Alan Guttmacher Institute, New York.
- De Charms, Richard. 1968. *Personal Causation*. New York: Academic Press.
- Deci, E. L. 1975. *Intrinsic Motivation*. New York: Plenum Press.
- DiClemente, Ralph J. 1992. "Psychosocial Determinants of Condom Use Among Adolescents." Pp.34-51 in *Adolescents and Aids: A Generation in Jeopardy*, edited by R. J. DiClemente. Newbury Park, CA: Sage Publications.

- Dorius, Guy L., Tim B. Heaton, and Patrick Steffen. 1993. "Adolescent Life Events and Their Association With the Onset of Sexual Intercourse." *Youth and Society* 25:3-23.
- Downey, Geraldine, and Phyllis Moen. 1987. "Personal Efficacy, Income, and Family Transitions: A Longitudinal Study of Women Heading Households." *Journal of Health and Social Behavior* 28:320-33.
- Duncan, Greg J., and James N. Morgan. 1981. "Sense of Efficacy and Subsequent Changes in Income – A Replication." *Journal of Human Resources* 16:649-55.
- Family Health International. 1997. "Adolescent Reproductive Health." *Network* 17:2-31.
- Forrest, Jacqueline Darroch. 1990. "Adolescent Reproductive Behavior: An International Comparison of Developed Countries." Pp.13-35 in *Advances in Adolescent Mental Health: Contraception, Pregnancy, and Parenting*, vol. 4, edited by A. R. Stiffman and R. A. Feldman. London: Jessica Kingsley Publishers Ltd.
- Forrest, Jacqueline Darroch and Susheela Singh. 1990. "The Sexual and Reproductive Behavior of American Women, 1982-1988." *Family Planning Perspectives* 22:206-14.
- Fruin, Donna J., Chris C. Pratt, and Neville Owen. 1992. "Protection Motivation Theory and Adolescents' Perceptions of Exercise." *Journal of Applied Social Psychology* 22:55-69.

- Gecas, Viktor. 1989. "The Social Psychology of Self-Efficacy." *Annual Review of Sociology* 15:291-316.
- Gecas, Viktor and Michael L. Schwalbe. 1983. "Beyond the Looking-Glass Self: Social Structure and Efficacy-Based Self-Esteem." *Social Psychology Quarterly* 46:77-88.
- Gilchrist, Lewayne D. and Steven Paul Schinke. 1983. "Coping with Contraception: Cognitive and Behavioral Methods with Adolescents." *Cognitive Therapy and Research* 7:379-88.
- Glei, Dana. 1999. "Measuring Contraceptive Use Patterns Among Teenage and Adult Women." *Family Planning Perspectives* 31:73-80.
- Gordon, Chad. 1969. *Looking Ahead*. Washington, D.C.: American Sociological Association.
- Herceg-Baron, Roberta, Kathleen Mullan Harris, Kay Armstrong, Frank F. Furstenberg Jr., and Judy Shea. 1990. "Factors Differentiating Effective Use of Contraceptives Among Adolescents." Pp.37-50 in *Advances in Adolescent Mental Health: Contraception, Pregnancy, and Parenting*, vol. 4, edited by A. R. Stiffman and R. A. Feldman. London: Jessica Kingsley Publishers Ltd.
- Hill, Martha S., Sue Augustyniak, Greg J. Duncan, Gerald Gurin, Patricia Gurin, Jeffrey K. Liker, and James N. Morgan. 1985. *Motivation and Economic Mobility*. Ann Arbor, MI: Institute for Social Research.

- Hogan, Dennis P. and Evelyn M. Kitagawa. 1985. "The Impact of Social Status, Family Structure, and Neighborhood on the Fertility of Black Adolescents." *American Journal of Sociology* 90:825-55.
- Hughes, Michael, and David H. Demo. 1989. "Self-Perceptions of Black Americans: Self-Esteem and Personal Efficacy." *American Journal of Sociology* 95:132-59.
- Hunt, Janet G., and Larry L. Hunt. 1977. "Racial Inequality and Self-Image: Identity Maintenance and Identity Diffusion." *Sociology and Social Research* 61:539-59.
- Jones, Elise F., Lois Paul, and Charles F. Westoff. 1980. "Contraceptive Self-Efficacy: The Significance of Method and Motivation." *Studies in Family Planning* 11:39-50.
- Kasen, Stephanie, Roger D. Vaughan, and Heather J. Walter. 1992. "Self-Efficacy for AIDS Preventive Behaviors Among Tenth Grade Students." *Health Education Quarterly* 19:187-202.
- Katz, Edward J., Barry D. Fortenberry, J. Dennis Zimet, Gregory D. Blythe, and Margaret J. Orr. 2000. "Partner-Specific Relationship Characteristics and Condom Use Among Young People With Sexually Transmitted Diseases." *The Journal of Sex Research* 37:60-75.
- Kliewer, Wendy. 1991. "Coping in Middle Childhood: Relations to Competence, Type A Behavior, Monitoring, Blunting, and Locus of Control." *Developmental Psychology* 24:689-97.

- Ku, Leighton, Freya L. Sonenstein, and Joseph H. Pleck. 1994. "The Dynamics of Young Men's Condom Use During and Across Relationships." *Family Planning Perspectives* 26:246-51.
- Levinson, Ruth A. 1986. "Contraceptive Self-Efficacy: A Perspective on Teenage Girls' Contraceptive Behavior." *The Journal of Sex Research* 22:347-69.
- Longmore, Monica A. and Alfred DeMaris. 1997. "Perceived Inequality and Depression: The Moderating Effect of Self-Esteem." *Social Psychology Quarterly* 60:172-84.
- Longmore, Monica A., Wendy D. Manning, and Peggy C. Giordano. 2001. "Preadolescent Parenting Strategies and Teens' Dating and Sexual Initiation: A Longitudinal Analysis." *Journal of Marriage and Family* 63:322-35.
- Lowenstein, George and Frank F. Furstenberg, Jr. 1991. "Is Teenage Sexual Behavior Rational?" *Journal of Applied Social Psychology* 12:957-86.
- McLanahan, Sara and Gary Sandefur. 1994. *Growing Up With a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard University Press.
- Miller, Brent C. and Kristin A. Moore. 1990. "Adolescent Sexual Behavior, Pregnancy, and Parenting: Research Through the 1980s." *Journal of Marriage and the Family* 52:1025-44.
- Miller, Kim S., Rex Forehand, and Beth A. Kotchick. 1999. "Adolescent Sexual Behavior in Two Ethnic Minority Samples: The Role of Family Variables." *Journal of Marriage and the Family* 61:85-98.

- Moore, Kristin A., Brent C. Miller, Dana A. Gleib, and Donna R. Morrison. 1995.
Adolescent Sex, Contraception, and Childbearing: A Review of Recent Research.
Washington, DC: Child Trends, Inc.
- Mosher, William D. 1990. "Contraceptive Practice in the United States, 1982-1988."
Family Planning Perspectives 22:198-205.
- Mosher, William D. and James W. McNally. 1991. "Contraceptive Use at First
Premarital Intercourse: United States, 1965-1988." *Family Planning Perspectives*
23:108-16.
- Nagy, Stephen, Anthony G. Adcock, and M. Christine Nagy. 1994. "A Comparison of
Risky Health Behaviors of Sexually Active, Sexually Abused, and Abstaining
Adolescents." *Pediatrics* 93:570-75.
- Ott, Mary A., Nancy E. Adler, Susan G. Millstein, Jeanne M. Tschann, and Jonathan M.
Ellen. 2002. "The Trade-Off Between Hormonal Contraceptives and Condoms
Among Adolescents." *Perspectives on Sexual and Reproductive Health* 34(1):6-
14.
- Rosenthal, Doreen, Susan Moore, and Irene Flynn. 1991. "Adolescent Self-Efficacy,
Self-Esteem and Sexual Risk-Taking." *Journal of Community & Applied Social
Psychology* 1:77-88.
- Sable, Majorie R., Kay M. Libbus, and Jing-Er Chiu. 2000. "Factors Affecting
Contraceptive Use in Women Seeking Pregnancy Tests: Missouri 1997." *Family
Planning Perspectives* 32:124-31.

- Santelli, J. S., N. D. Brener, R. Lowry, A. Bhatt, and L. S. Zabin. 1998. "Multiple Sexual Partners Among U. S. Adolescents and Young Adults." *Family Planning Perspectives* 30(6):271-75.
- Schuman, Howard. 1995. "Attitudes, Beliefs, and Behavior." Pp.68-89 in *Sociological Perspectives on Social Psychology*, edited by K. S. Cook, G. A. Fine, and J. S. House. Needham Heights, MA: Allyn and Bacon.
- Schwarzer, Ralf. 1992. "Self-Efficacy in the Adoption and Maintenance of Health Behavior: Theoretical Approaches and a New Model." Pp.217-42 in *Self-Efficacy: Thought Control of Action*, edited by R. Schwarzer. Washington, DC: Hemisphere.
- Schwarzer, Ralf and Reinhard Fuchs. 1996. "Self-Efficacy and Health Behaviours." Pp.163-96 in *Predicting Health Behaviour: Research and Practice with Social Cognition Models*, edited by M. Conner and P. Norman. Bristol, PA: Open University Press.
- Small, Stephen A. and Donell Kerns. 1993. "Unwanted Sexual Activity Among Peers During Early and Middle Adolescence: Incidence and Risk Factors." *Journal of Marriage and the Family* 55:941-52.
- Sonenstein, Freya L., Joseph H. Pleck, and Leighton C. Ku. 1989. "Sexual Activity, Condom Use and AIDS Awareness Among Adolescent Males." *Family Planning Perspectives* 21:152-58.
- Sternberg, Robert J. and John Kolligian Jr., ed. 1990. *Competence Considered*. New Haven, CT: Yale University Press.

- Stevens-Simon, Catherine, Lisa Kelly, Dena Singer, and Amy Cox. 1996. "Why Pregnant Adolescents Say They Did Not Use Contraceptives Prior to Conception." *Journal of Adolescent Health* 19:48-53.
- Stevens-Simon, Catherine and Susan Reichart. 1994. "Child Abuse and Adolescent Pregnancy." *Archives of Pediatric Adolescent Medicine* 148:23-7.
- Stock, Jacqueline L., Michelle A. Bell, Debra K. Boyer, and Frederick A. Connell. 1997. "Adolescent Pregnancy and Sexual Risk-Taking Among Sexually Abused Girls." *Family Planning Perspectives* 29:200-3, 227.
- Studer, Marlena, and Arland Thornton. 1987. "Adolescent Religiosity and Contraceptive Use." *Journal of Marriage and the Family* 49:117-28.
- Warren, Charles W., John S. Santelli, Sherry A. Everett, Laura Kann, Janet L. Collins, Carol Cassell, Leo Morris, and Lloyd J. Kolbe. 1998. "Sexual Behavior Among U. S. High School Students, 1990-1995." *Family Planning Perspectives* 30:170-2, 200.
- Weiss, Maureen R., Diane M. Wiese, and Kimberley A. Klint. 1989. "Head Over Heels with Success: The Relationship Between Self-Efficacy and Performance in Competitive Youth Gymnastics." *Journal of Sport and Exercise Psychology* 11:444-51.
- Wu, Lawrence L. and Brian C. Martinson. 1993. "Family Structure and the Risk of a Premarital Birth." *American Sociological Review* 58:210-32.
- Zimmerman, Rick S., Lawrence H. Ganong, and Patricia Ellis. 1995. "Adolescents' Perceived Ability to Say 'No' to Unwanted Sex." *Adolescence* 20:537-43.

Contraceptive self-efficacy

Table 1. Percentages and Means for Contraceptive Self-Efficacy, Type of Contraceptive Used, and Background Variables

Contraceptive self-efficacy (mean)	12.7
Type of contraceptive used (wave 2)	
None	27.5
Chemical/hormonal	28.8
Condom	41.3
Other	2.4
Gender	
Male	48.0
Female	52.0
Age (mean)	16.9
Race	
White	64.4
Black	18.8
Hispanic	10.7
Other	6.1
Mother's education	
< 12 years	19.8
12 years	39.8
13 – 15 years	20.7
16+ years	19.7
Religious involvement (mean)	2.4
Prior sexual experience	
None	19.1
Some	80.9
Family structure	
Two biological parents	43.9
Step-parent	11.8
Single	35.3
Other	9.0
Logged income (mean)	3.5
Missing income	
No	77.4
Yes	22.6
Dating status	
Currently dating	58.1
Has dated	33.1
Never dated	8.8
Sex education	
No	4.0
Yes	96.0
Mother's approval of contraceptive use (mean)	3.6
N	3577

Source: National Longitudinal Study of Adolescent Health, Waves 1 and 2

Contraceptive self-efficacy

Table 2. Regression Estimates (and Standard Errors) for the Effects of Demographic and Background Variables on Contraceptive Self-Efficacy (W1)

Male (Female)	-.89***	(.13)
Age	.14***	(.06)
Race (White)		
Black	.06	(.13)
Hispanic	-.24	(.17)
Other	-.19	(.20)
Mother's education (12 years)		
< 12 years	-.45***	(.13)
13 – 15 years	.09	(.16)
16+ years	.25	(.13)
Religious involvement	-.04	(.06)
No prior sexual experience (Prior sexual experience)	.06	(.16)
Family structure (Two biological)		
Step-parent	.35*	(.19)
Single parent	-.06	(.12)
Other	.02	(.18)
Logged income	.07	(.09)
Missing income (Not missing income)	-.16	(.12)
Dating status (Currently dating)		
Not currently dating	-.19	(.11)
Never dated	.01	(.22)
Sex education	.39	(.26)
Mother's approval of contraceptive use	.19***	(.05)
F	8.44***	
N	3577	
R ²	.06	

Source: National Longitudinal Study of Adolescent Health Waves 1 and 2

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Contraceptive self-efficacy

Table 3. Odds Ratios (and Standard Errors) of the Effects of Demographic and Background Variables (W1) on Type of Contraceptive Used (W2)

	Condom vs. Nothing		Non-condom vs. Nothing		Condom vs. Non-condom	
	<u>Model 1</u>		<u>Model 2</u>		<u>Model 3</u>	
Male (Female)	1.29*	(.14)	0.63***	(.08)	2.03***	(.26)
Age	0.96	(.06)	1.03	(.07)	0.93	(.07)
Race (White)						
Black	1.43*	(.22)	1.21	(.20)	1.18	(.18)
Hispanic	0.80	(.14)	0.77	(.13)	1.03	(.18)
Other	0.69	(.17)	0.97	(.24)	0.71	(.15)
Mother's education (12 years)						
< 12 years	0.94	(.18)	0.12	(.20)	0.84	(.14)
13-15 years	0.95	(.13)	1.08	(.19)	0.88	(.13)
16+ years	1.14	(.16)	1.04	(.17)	1.09	(.17)
Religious involvement	1.05	(.05)	0.96	(.05)	1.09	(.06)
No prior sexual experience (Prior experience)	1.14*	(.24)	0.78	(.13)	1.80***	(.30)
Family structure (Two biological)						
Step-parent	1.02	(.25)	0.94	(.20)	1.09	(.18)
Single	0.75*	(.11)	0.87	(.14)	0.86	(.11)
Other	0.39***	(.08)	0.69	(.14)	0.56**	(.12)
Logged income	1.09	(.10)	1.17	(.10)	0.93	(.08)
Missing income (Not missing)	0.81	(.13)	0.75*	(.10)	1.08	(.12)
Dating status (Currently dating)						
Not currently dating	1.24	(.17)	0.78*	(.10)	1.59***	(.19)
Never dated	1.00	(.20)	0.73	(.14)	1.37	(.26)
Sex education	1.15	(.29)	0.83	(.22)	1.38	(.38)
Mother's approval of contraceptive use	1.05	(.04)	1.21***	(.06)	0.86***	(.04)
χ^2				-3729.54		
N				3577		

Source: National Longitudinal Study of Adolescent Health Waves 1 and 2

*p ≤ .05, **p ≤ .01, ***p ≤ .001

Contraceptive self-efficacy

Table 4. Odds Ratios (and Standard Errors) of the Effects of Contraceptive Self-Efficacy and Demographic and Background Variables (W1) on Type of Contraceptive Used (W2)

	Condom vs. Nothing		Non-condom vs. Nothing		Condom vs. Non-condom	
	Model 1		Model 2		Model 3	
Contraceptive self-efficacy	1.08**	(.03)	1.06**	(.02)	1.01	(.02)
Male (Female)	1.39**	(.11)	0.68**	(.13)	2.05***	(.13)
Age	0.95	(.06)	1.02	(.06)	0.93	(.08)
Race						
(White)						
Black	1.43*	(.15)	1.21	(.17)	1.18	(.15)
Hispanic	0.81	(.18)	0.79	(.17)	1.03	(.18)
Other	0.69	(.24)	0.98	(.25)	0.71	(.21)
Mother's education (12 years)						
< 12 years	0.98	(.19)	1.15	(.18)	0.84	(.17)
13-15 years	0.95	(.13)	1.07	(.17)	0.89	(.15)
16+ years	1.12	(.14)	1.02	(.16)	1.09	(.16)
Religious involvement	1.05	(.05)	0.96	(.05)	1.09	(.06)
No prior sexual experience (Prior sexual experience)	1.40*	(.17)	0.79	(.17)	1.80***	(.17)
Family structure (Two biological)						
Step-parent	1.00	(.25)	0.92	(.21)	1.08	(.16)
Single	0.76	(.15)	0.88	(.17)	0.86	(.12)
Other	0.38***	(.21)	0.69	(.20)	0.55**	(.21)
Logged income	1.08	(.09)	1.16	(.09)	0.93	(.09)
Missing income (Not missing)	0.82	(.16)	0.76*	(.14)	1.08	(.11)
Dating status (Currently dating)						
Not currently dating	1.25	(.14)	0.79*	(.13)	1.59***	(.13)
Never dated	0.99	(.20)	0.73	(.19)	1.36	(.19)
Sex education	1.12	(.26)	0.81	(.26)	1.37	(.28)
Mother's approval of contraceptive use	1.03	(.04)	1.19***	(.05)	.86***	(.04)
χ^2			-3689.53			
N			3577			

Source: National Longitudinal study of Adolescent Health Waves 1 and 2

*p ≤ .05, **p ≤ .01, ***p ≤ .001