Factors Associated with Unintended Pregnancy, Contraceptive Risk-Taking, and Interest in Pharmacist-Provided Birth Control

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Abstract

Background

Although overall rates of unplanned pregnancies have declined, significant racial and geographic disparities persist. At the same time, there are new opportunities to improve access to contraception. This study identifies contributors to the high rate of unplanned pregnancies in a rural farming community in California and assesses interest in pharmacist-prescribed contraception.

Methods

Data for this study were gathered through an anonymous, written survey of 97 adult women under age 50. Primary outcomes were unplanned pregnancy and contraceptive risk-taking, defined as inconsistent use of contraceptives without desire for pregnancy. Two multivariate logistic regression models identified factors associated with each outcome, adjusting for income, educational attainment, receipt of sex education, and birth country. A separate model determined factors associated with interest in pharmacist-prescribed contraception.

Results

Participants were primarily Latina (81%), US-born (56%), and Catholic (69%), with a median annual income between $10,000–$19,999. The majority reported at least one unplanned pregnancy (60%), and 47% were contraceptive risk-takers. Most had health insurance (86%) with contraception coverage (87%). Several factors were associated with contraceptive risk-taking and unplanned pregnancies, including knowledge and attitudes toward contraceptives, income, future goals, age at first pregnancy, mother’s age at first pregnancy, and religiosity. A total of 43% were interested in pharmacist-prescribed birth control. Participants with a history of emergency contraceptive use and those who felt embarrassed to buy condoms were more likely to be interested in the pharmacist’s services.

Conclusion

Multiple factors contribute to disparities in family planning outcomes. Findings may be used to develop partnerships between reproductive health stakeholders and to inform pharmacists’ interactions with patients who may benefit from their family planning services.

Keywords:

Unplanned Pregnancy; Unintended pregnancy; Contraceptive Risk-Taking; Pharmacist prescribing; Birth control; Contraception; Health Disparities; Family Planning; Hispanic; Latina; Latino; Latinx; Farmworker health; Immigrant health

Introduction

Although a wider variety of contraceptive methods have become available over the last several decades,(1) nearly half of all births in the United States each year are unintended, defined as either mistimed (ie, respondent did not want to be pregnant at the time of pregnancy, but wanted to become pregnant in the future) or unwanted (ie, respondent never wanted to be pregnant).(2) Reducing unintended pregnancy remains a national public health goal through Healthy People 2020, as births resulting from unintended pregnancies are closely associated with adverse maternal and child health outcomes, including depression, anxiety, relationship failure, and decreased educational attainment and earning power.(3,4) The level of unintended pregnancy in the United States is high compared with most other industrialized countries, especially among adolescents.(5) For example, the US rate of teen pregnancy is 83.6 per 1000 women aged 15–19, compared with 45.4 in Canada, 46.9 in England and Wales, and 24.9 in Sweden. Adolescent pregnancy causes substantial social consequences and economic loss for teen parents and their children.(6,7) Despite recent overall declines in teen birth rates (20% between 1970 and 1995), racial and geographic disparities persist at the state level and between counties.(5,8,9) Specifically, the birth rate among Latinx/Hispanic and black teens remains twice as high as that of their white counterparts.(10) Thus, local data collection and intervention in medically underserved communities are imperative to reducing these disparities.

Delano, California, is a rapidly growing, rural, farming community with 13% of live births to teen parents, a rate that is more than twice the state average and one of the highest in the nation.(11) The population is 79% Hispanic or Latinx, with 66% living at or below 200% of the federal poverty level (low income). Obtaining health care remains challenging; nearly 30% of residents are uninsured, and the region has been designated a Primary Care Shortage Area and Registered Nurse Staffing Area by the California Healthcare Workforce Policy Commission.

In order to bridge some of the gaps in access to family planning services, new opportunities have arisen to create additional access points outside of the traditional clinic setting. Online birth control pharmacies have gained popularity in recent years, especially among teens and young adults.(12) In addition, several states have passed legislation allowing pharmacists to directly prescribe or furnish birth control to a patient, including California, Colorado, New Mexico, Oregon, Washington, and others in progress as of the time of this writing.(13) However, the implementation of these laws has been slow, with only 5-11% of pharmacies in California providing the new service.(14,15) Lack of insurance reimbursement for the pharmacist visit has been cited as a common barrier to implementation. Others have raised concerns about training, liability, and staffing.
In addition to limited health care access, studies have investigated family dynamics, behavioral differences, and sexual education levels as other potential sources of disparity in family planning outcomes among Mexican-American populations. Lack of awareness of contraceptive options, misconceptions about side-effects, and lack of knowledge about effective use of contraceptives are areas of opportunity for intervention by health care professionals.(16,17,18) Level of acculturation, socio-economic status, and future goals also contribute to unintended pregnancy or contraceptive risk-taking behavior.(17,18) Additionally, cultural factors such as a religious emphasis placed on virginity and discouragement of sexual education have been documented.(21) The role of male partners to act as decision makers for Latina women in the use of contraceptives has also been studied in reference to the cultural phenomenon of “machismo.”(22)

Objectives

By identifying demographics, socioeconomic factors, belief systems, and family dynamics that may be associated with nonuse of contraceptives, this study aims to identify contributors to the high rate of unplanned pregnancies in the study population. In addition, the analysis will identify factors associated with patient interest in pharmacist-provided birth control.

Methods

Instrument Development

Data for this observational, cross-sectional study were gathered through an anonymous, written questionnaire, available in Spanish and English. Survey questions were formulated using a combination of questions available through previously published studies(19) and a family planning survey instrument available through the World Health Organization Program of Research, Development and Research Training in Human Reproduction.23 A 121-question survey was designed with 6 question domains: (1) Demographics, (2) Knowledge of Reproductive Health, (3) Relationship History, (4) Knowledge, Attitudes, and Use of Contraceptives, (5) Sexuality, Gender, and Norms, and (6) Use and Perceptions of Health Care Service. Pretesting was conducted on English and Spanish versions of the draft survey by a convenience sample of five Delano residents, representative of the survey target audience. Pretesters were asked to provide feedback on the understandability, completeness, and appropriateness of answer choices, and ease of use. The final instrument, study protocol, and informed consent were approved by the institutional review board of the University of Southern California.

Survey Collection

All adults entering a high-traffic community pharmacy in Delano, California, during operating hours were approached to participate in the study. Each person who agreed to participate gave informed consent and was given a private space within the pharmacy to complete the written survey in the participant’s choice of English or Spanish. The questionnaire was administered verbally by trained bilingual interviewers to participants who were unable to read or write. Each survey was assigned a code based on the date and time of completion; no identifying information was collected. Participants were given a $5 gift-card for their participation. Data collection began on January 10, 2017, and was completed on January 11, 2017, after collecting enough surveys to meet the minimum acceptable sample size (see Statistical Analysis section).

Study Population

The study population included female-identifying residents of Delano, California, aged 18–50. Eighteen was determined to be the minimum age for the study, as minors would require additional consent from a guardian. Due to the personal nature of many survey questions, it was determined that the presence of a guardian during survey administration would compromise the ability of the participant to answer questions truthfully. Fifty was determined to be the maximum age of participation based on the reproductive age limit for most of the general population.

Study Outcome

Primary outcomes were a history of unplanned pregnancy and contraceptive risk-taking. Unplanned pregnancy was defined as indicating, “Some planned” or “None planned” to the question, “Were any of your pregnancies planned?” Contraceptive risk-taking was defined as indicating “Sometimes” or “Never” to the question, “How often do you or your partner use a method to prevent pregnancy?” and simultaneously, not indicating that they wanted to become pregnant. The analyses excluded respondents who had been sterilized, who had never had penis-in-vagina intercourse, and those with incomplete responses to both questions.

The secondary outcome was interest in pharmacist-prescribed birth control, assessed by an affirmative response to the question, “Would you be interested in receiving birth control from a pharmacist?” This question immediately followed a previous prompt, “Are you aware that there is a new California law that now allows pharmacists to provide birth control without a doctor’s prescription?”

Statistical Analysis

The sample size was calculated based on acceptability of margin of error and available project funding. Based on a 2016 population size of 129,296 residents in the Delano Service Area, of whom 43% were female,11 it was determined that a sample size of 96 participants would yield results with up to 10% margin of error. Statistical Analysis Software (SAS University Edition 2016) was utilized for all analyses between independent variables and outcomes. Univariate logistic regression analyses were run to determine unadjusted odds ratios (ORs) between each independent variable and outcome. Covariates that showed a significant association (p< 0.10) with risk-taking or unplanned pregnancy were considered for inclusion within the multivariate models. The final multivariate models included variables with statistically significant associations with the outcome (p<0.05), as well as income, educational attainment, receipt of school based sex-education, and country of birth based on association with the outcomes from previous studies.24
### Table 1. Sociodemographic Characteristics of the Study Sample

| Variable                          | N=97  |
|----------------------------------|-------|
| **Age (mean, SD)**               | 32.7 (8.7) |
| Age range (years)                | 19 - 49 |
| Country of birth (n, %)           |       |
| United States                    | 54 (56%) |
| Other                            | 43 (44%) |
| Preferred language (n, %)         |       |
| English                          | 69 (71%) |
| Spanish                          | 24 (24%) |
| Race/ethnicity (n, %)             |       |
| American Indian                  | 1 (1%)  |
| Asian                            | 7 (8%)  |
| Black/African American           | 1 (1%)  |
| Hispanic/Latinx                  | 77 (81%) |
| Pacific Islander                 | 2 (2%)  |
| White                            | 3 (3%)  |
| Other or multiple                | 4 (4%)  |
| Religion (n, %)                   |       |
| Catholic                         | 67 (69%) |
| Christian/Protestant             | 19 (20%) |
| None                             | 7 (7%)  |
| Other                            | 3 (3%)  |
| Importance of religion (n, %)     |       |
| Very important                   | 37 (38%) |
| Important                        | 49 (51%) |
| Not important                    | 11 (11%) |
| Annual household income (n, %)    |       |
| <$10,000                         | 31 (32%) |
| $10,000 - $19,999                | 27 (28%) |
| $20,000 - $34,999                | 27 (28%) |
| $35,500 or more                  | 11 (11%) |
| Employment status (n, %)          |       |
| Part-time                        | 17 (19%) |
| Full-time                        | 37 (40%) |
| Unemployed                       | 6 (6%)  |
| Not employed, not looking        | 4 (4%)  |
| Disabled                         | 8 (9%)  |
| Student                          | 3 (3%)  |
| Stay at home parent              | 17 (18%) |
| Education (n, %)                  |       |
| Less than high school            | 19 (20%) |
| High school graduate             | 33 (34%) |
| Some college or more             | 45 (46%) |
| Receiving public assistance b (n, %)| 49 (51%) |
| Relationship status (n, %)        |       |
| Single, never married            | 22 (23%) |
| Dating less than a year          | 4 (4%)  |
| Dating over a year               | 22 (23%) |
| Married                          | 37 (39%) |
| Separated                        | 5 (5%)  |
| Divorced                         | 4 (4%)  |
| Widowed                          | 2 (2%)  |

a Percentages may not total to 100 due to rounding and some missing data

b Public assistance was defined as receiving any benefits from California Work Opportunity and Responsibility to Kids (CalWORKS), electronic benefit transfer (EBT), Cash Assistance Program for Immigrants (CAPI), or women, infants, and children (WIC).
Table 2. Sexual Behavior, Beliefs, Knowledge, and Health Care Access

| Variable | N=97 | Variable | N=97 |
|----------|------|----------|------|
| Believe in male abstinence until marriage (n, %) | 28 (29%) | Age at first marriage (mean, SD) | 20.9 (39) |
| Believe in female abstinence until marriage (n, %) | 36 (37%) | Had intercourse within past year (n, %) | 81 (84%) |
| Ever had penis in vagina intercourse (n, %) | 84 (87%) | Frequency of birth control use (n, %) | |
| Used protection at first intercourse (n, %) | 40 (48%) | Always | 42 (51%) |
| First intercourse under age 17 (n, %) | 35 (47%) | Sometimes | 24 (29%) |
| Age at first intercourse (mean, SD) | 17.7 (3.3) | Never | 22 (27%) |
| History of pregnancy (n, %) | 75 (77%) | | |
| History of unplanned pregnancy (n, %) | 45 (60%) | | |
| History of abortion (n, %) | 10 (13%) | | |
| Age at first child (mean, SD) | 20.6 (4.9) | Condom | 31 (38%) |
| Had first child under age 20 (n, %) | 44 (59%) | Pill | 15 (19%) |
| Age of mother at first child (mean, SD) | 20 (4.2) | Emergency birth control | 2 (2%) |
| Number of children (n, %) | | Patch | 2 (2%) |
| 0 | 23 (24%) | Vaginal ring | 1 (1%) |
| 1 | 13 (13%) | Injection | 1 (1%) |
| 2 | 22 (23%) | Withdrawal | 6 (7%) |
| 3 | 14 (14%) | Rhythm method | 1 (1%) |
| 4 or more | 25 (26%) | IUD | 9 (11%) |
| Sterilized | 6 (7%) | Other | 2 (2%) |
| Contraceptive risk-taking (n, %) | 30 (47%) |

* Percentages may not total to 100 due to rounding and some missing data.

b Denominator based on number of people who ever had intercourse (n=84)

c Denominator based on number of people who had intercourse in past year AND do not desire pregnancy (n=64)

d Surveyed birth control methods were the birth control pill, patch, vaginal ring, injection, condom, intra-uterine device (IUD), implant, sterilization (“getting tubes tied”), emergency contraception (“Morning after pill”), withdrawal (“pulling out”), and rhythm/periodic abstinence method. Denominator based on number of people who had intercourse within past year (n=81)

e Denominator based on number of people who had intercourse in past year AND do not desire pregnancy (n=64)

f Reasons for non-use are not mutually exclusive. Participants could choose more than one response. Denominator based on number of people who had intercourse within past year (n=81)

g Correct selections for prevention of STDs included condoms and abstinence.
Results

Characteristics of the Study Population (Tables 1 and 2)

Researchers collected 129 surveys; 99 surveys met inclusion criteria and 97 surveys were selected for analysis. Two surveys that met inclusion criteria were thrown out due to lack of completeness and nonsensical responses.

Spanish language surveys were administered to 24 participants. Survey participants were primarily Hispanic/Latina (81%), United States born (56%), and Catholic (69%). The median annual household income was $10,000–$19,999; however, the most commonly reported income bracket was less than $10,000. Over half of the respondents reported receiving public assistance (51%), and 80% of respondents completed at least a high school diploma. Most participants had children (76%), and 59% reported having a child as a teenager (age 19 or younger). The most common methods of birth control were condoms (38%), pills (19%), and IUD (11%). The majority of respondents reported receiving school-based sex education (60%) and also believed there should be more classes offered (73%). Nearly all participants had health insurance (96%) and 87% had coverage for contraception.

Factors Associated With Contraceptive Risk-Taking (Table 3)

In this study, 47% of those who were currently sexually active (penis-in-vagina intercourse within the past year) and not seeking to get pregnant reported inconsistent or nonuse of contraceptives, as compared to a 9.2% U.S. national average. Future goals and age at birth of first child were associated with contraceptive risk-taking. Participants whose five-year goal is to stay at home were over 11 times more likely to engage in risk-taking behavior than those who plan to work full or part-time (OR 11.469, CI 1.284-102.439). Teen parents in this study were 13 times more likely to engage in risk-taking behavior than participants who were not teen parents (OR 13.432, CI 1.954-92.325). Conversely, children of a teen mother were 83% less likely to engage in risk-taking behavior than children whose mothers were 20 years or older when they had their first child (OR 0.172, CI 0.032-0.934). Higher income was also associated with consistent use of contraceptives. Participants earning $20,000 or more annually were 85% less likely to engage in risk-taking behavior than those who earn less than $10,000 annually (OR 0.152, CI 0.027-0.865).

Table 3. Factors Associated with Risk-Taking Behavior

| Variable                                      | Comparator                      | OR (95% CI)         | P Value |
|-----------------------------------------------|---------------------------------|---------------------|---------|
| Teen parent                                   | Non-teen parent                 | 13.432 (9.54, 23.25)| 0.0083  |
| Child of teen mother                          | Child of mother < age 20        | 0.172 (0.032, 0.934)| 0.0415  |
| Five year goal                                |                                 |                     |         |
| Stay-at-home parent                           | Work full or part-time          | 11.469 (1.28, 102.439)| 0.0290  |
| Student                                       | Work full or part-time          | 8.523 (0.692, 104.955)| 0.0944  |
| Unknown/not planned/other                     | Work full or part-time          | 0.958 (0.153, 6.018)| 0.9635  |
| Annual household income                       |                                 |                     |         |
| $10,000 - $19,999                             | Less than $10,000               | 0.217 (0.031, 1.533)| 0.1255  |
| ≥$20,000                                      | Less than $10,000               | 0.152 (0.027, 0.865)| 0.0337  |
| Born outside US                               | US-born                         | 3.491 (0.600, 20.296)| 0.1640  |
| Attended some college or obtained degree      | High school graduate or less    | 0.831 (0.176, 3.933)| 0.8158  |
| Received sex education classes                | Did not receive sex education classes | 2.279 (0.475, 10.938)| 0.3033  |

OR, odds ratio, adjusted for all factors included in table; CI, confidence interval.
Factors Associated With Unplanned Pregnancy (Table 4)

The majority of respondents who had ever been pregnant reported that some or all pregnancies were unplanned (60%), as compared to a US national average of 45%. Several factors related to attitudes about birth control were associated with an increased likelihood of unplanned pregnancy. Those who believed condoms were ineffective at preventing pregnancy were 29 times more likely to have reported an unplanned pregnancy than those who were unsure or agreed that condoms were effective. (OR 28.617, CI 1.529-535.681) Individuals who have used a condom before were 10 times more likely to have reported an unplanned pregnancy than those who had not used a condom before. (OR 9.999, CI 1.119-89.361) In addition, those who have friends who would consider abortion were nine times more likely to have an unplanned pregnancy than those with friends who would never consider abortion or those who did not know their friends’ beliefs; however, this relationship was only marginally statistically significant. (OR 8.582, CI 1.01-72.320)

Other factors including religiosity and knowledge of birth control methods were associated with a decreased likelihood of unplanned pregnancy. Participants who have heard of the implant birth control method were 98% less likely to have an unplanned pregnancy than those who had not heard of implant birth control. (OR 0.023, CI 0.001-0.374) Finally, those who rated religion very important were 89% less likely to report an unplanned pregnancy than those who believe religion is important. (OR 0.111, CI 0.014-0.881)

| Table 4. Factors Associated with Unplanned Pregnancy |
|-----------------------------------------------------|
| **Variable**                                      | **Comparator**                                      | **OR (95% CI)**          | **P Value** |
| Disagree that condoms are effective to prevent pregnancy | Agree or do not know if condoms are effective at preventing pregnancy | 28.617 (1.529, 535.681)  | 0.0248     |
| History of condom use                              | No condom use history                                | 9.999 (1.119, 89.361)    | 0.0394     |
| Friends would consider abortion                     | Friends would not consider abortion or do not know  | 8.582 (1.018, 72.320)    | 0.0481     |
| Aware of implant birth control                      | Unaware of implant birth control                    | 0.023 (0.001, 0.374)     | 0.0081     |

**Importance of Religion**

| **Variable**                                      | **Comparator**                                      | **OR (95% CI)**          | **P Value** |
| Very important                                    | Important                                            | 0.111 (0.014, 0.881)     | 0.0375     |
| Not important                                     | Important                                            | 0.490 (0.036, 46.629)    | 0.2699     |

| **Annual household income**                       | **Comparator**                                      | **OR (95% CI)**          | **P Value** |
| $10,000 – $19,999                                 | Less than $10,000                                   | 0.080 (0.006, 1.043)     | 0.0539     |
| ≥$20,000                                         | Less than $10,000                                   | 0.230 (0.017, 3.126)     | 0.2699     |

| **Born outside US**                               | **Comparator**                                      | **OR (95% CI)**          | **P Value** |
| US- born                                         | US- born                                            | 0.345 (0.063, 1.881)     | 0.2186     |

| **Attended some college or obtained degree**       | **Comparator**                                      | **OR (95% CI)**          | **P Value** |
| High school graduate or less                      | High school graduate or less                        | 5.418 (0.600, 48.898)    | 0.1323     |

| **Received sex education classes**                 | **Comparator**                                      | **OR (95% CI)**          | **P Value** |
| Did not receive sex education classes             | Did not receive sex education classes               | 0.180 (0.025, 1.297)     | 0.0887     |

OR, odds ratio, adjusted for all factors included in table; CI, confidence interval
Factors Associated with Interest in Pharmacist-Furnished Birth Control (Table 5)

Over half of the respondents indicated that they were aware that pharmacists in California could prescribe birth control directly (53%), and 43% said that they would be interested in receiving birth control from a pharmacist. Those who were interested in the service were more likely to have a history of emergency contraception use (OR 8.365, CI 1.430-48.942) and to report that condoms were embarrassing to purchase (OR 6.708, CI 1.870-24.066). Although not statistically significant, those who were the sole decision makers for their birth control use were more likely to be interested in pharmacist-provided birth control than those whose partners were either partial or sole decision makers (OR 2.668, CI 0.878-8.102). A total of 42 respondents indicated that they would not be interested in the service. The most common reasons for lack of interest (nonmutually exclusive) included a lack of need (67%), a preference to receive birth control from their physicians (48%), and a desire for or apathy toward pregnancy (29%).

Discussion

Despite largely having insurance coverage for contraception and contraceptive services, nearly half of the sexually active participants who did not desire pregnancy used contraceptives inconsistently or not at all, and over half reported a history of unplanned pregnancy. The analysis revealed that several factors other than health care access may have impacted the participants’ likelihood of contraceptive risk-taking and unplanned pregnancies, including knowledge of and attitudes toward contraceptive methods, income level, goals for the future, age at first pregnancy, mother’s age at her first pregnancy, and religiosity.

Analysis of the National Survey of Family Growth shows that 9.2% of women in all income levels are contraceptive risk-takers, compared to 47% of respondents in this study. However, a previous study conducted on low-income Latina women in East Los Angeles found 44% of participants engaged in contraceptive risk-taking. The marked difference between the national average and these two demographically similar populations demonstrates the importance of identifying community-specific needs in order to tailor interventions appropriately.

The current study findings differ from the results of other studies demonstrating the effect of acculturation on family planning behavior and preferences, as no significant difference in risk-taking or unplanned pregnancy was found between English/Spanish speakers and American-born/foreign-born participants. In addition, the individuals surveyed did not support previous research demonstrating “machismo” effects on contraception, as only one of the 97 respondents reported that her male partner was the sole decision maker regarding contraceptive use. In contrast, 36% of respondents considered themselves the sole decision makers, and 53% of all participants reported that decision making was mutual between themselves and their partners.

In addition, the current analysis found evidence counter to studies suggesting that a cultural or religious emphasis is placed on virginity and discouragement of sexual education. Although respondents were predominantly Catholic (69%), most participants responded that they did not believe people should remain abstinent until marriage. Beliefs against abstinence were also reflected in behavior, with the mean age of first intercourse (17.7) occurring before the mean age of marriage (20.9), and 47% of respondents having intercourse before age 17.

Self-reported reasons for nonuse of contraceptives also did not indicate strong discouragement of contraceptive use by family, as apathy (10%), forgetfulness (11%), and concerns about side effects (9%) were more commonly reported reasons than fear of discovery from others (5%). Furthermore, finding religion very important was associated with a decreased likelihood of reporting a pregnancy as unplanned. It is possible that religiosity may decrease the propensity to label a pregnancy as “unplanned,” for example, if it were part of a larger divine plan. In contrast, having friends with more relaxed attitudes toward abortion was associated with an increased likelihood of unplanned pregnancy. Due to the cross-sectional nature of the survey, the direction of the association is not clear—ie, whether associating with people who are receptive to abortion was a risk factor for unplanned pregnancy or whether having a history of unplanned pregnancy made participants more likely to associate with people who are receptive toward abortion. It should be noted that the receptiveness toward abortion of the participants themselves was not associated with increased unplanned pregnancy risk, but having friends receptive to abortion made participants more likely to have had an unplanned pregnancy. This may be due to apprehension to reveal true feelings about this controversi-

Table 5. Factors Associated with Interest in Pharmacist-Furnished Birth Control

| Variable                                      | Comparator                              | OR (95% CI)     | P Value |
|-----------------------------------------------|-----------------------------------------|-----------------|---------|
| Find condoms embarrassing to purchase         | Do not find condoms embarrassing to purchase | 6.708 (1.870, 24.066) | 0.0035  |
| History of emergency contraception use       | No history of emergency contraception use | 8.365 (1.430, 48.942) | 0.0184  |
| Sole decision-maker for contraception use is self | Contraception decision-maker is partner or mutual | 2.668 (0.878, 8.102) | 0.0834  |

OR, odds ratio, adjusted for all factors included in table; CI, confidence interval
al topic (a typical limitation of survey research), and in some cases, a friend’s receptiveness may be a truer marker of the respondents’ attitudes as well.\textsuperscript{28}

This study supports the findings of previous studies demonstrating that limited reproductive knowledge contributes to unplanned pregnancy.\textsuperscript{24} In this analysis, despite 80% of participants completing their high school education, the majority felt that they would have benefited from additional sex education. A lack of awareness of contraceptive options has been implicated as a contributing factor in health care disparities between Latina and white women.\textsuperscript{29} Only 31% surveyed were aware of all birth control methods listed in the survey. Furthermore, being aware of contraceptive implants as a potential birth control method was significantly associated with decreased unplanned pregnancy. It is possible that knowledge of implant birth control may be serving as a marker for deeper knowledge about birth control use or sexual health in general. Many demonstrated a lack of knowledge about effective use of contraceptives; one in five surveyed could not identify which birth control methods adequately protected against sexually transmitted diseases. Those who had a history of condom use and those who mistrusted their effectiveness were more likely to have reported an unplanned pregnancy, implying inconsistent or incorrect use, or potential condom failure in this group. Misconceptions about side-effects of contraceptive methods were also prevalent in this study. Nearly 10% surveyed cited side-effects or concerns of infertility as reasons for inconsistent birth control use. At the same time, nearly half of the respondents reported that they would prefer to receive sexual health information from their health care providers. These knowledge gaps present an opportunity for clinicians to elicit their patients’ specific concerns and provide appropriate education.

This study also affirms research showing that socioeconomic status determines contraceptive risk-taking.\textsuperscript{19} A significant association was found between higher annual household income and lower likelihood of risk-taking. Furthermore, belief in opportunity for the future influenced behavior, as found in previous research.\textsuperscript{17} Having a five-year-goal to stay at home was associated with a higher likelihood of contraceptive risk-taking compared to those with the goal to work full or part-time. This may reflect openness to the possibility of having a large family, a perceived lack of lifestyle change from a previous unplanned pregnancy, plans to maintain a stable relationship, or inability to afford childcare that would enable employment.

Participants who had their first child when they were under age 20 were found to be more likely to use contraceptives inconsistently or not at all. Teen parents are less likely to finish high school, which affects their future earning potential.\textsuperscript{20} Therefore, having children as a teenager may be interrelated with other covariates of significance in this study, such as income, sexual and reproductive knowledge, and plans for the future. Surprisingly, children of teen parents were themselves less likely to engage in risk-taking behavior, which contradicts many previous studies.\textsuperscript{20} This may reflect a desire for a different lifestyle than childhood experience, or an emphasis by teen parents to counsel children about risk-taking.

With respect to attitudes toward pharmacist-provided contraception, participants with a history of emergency contraception use and those who felt embarrassed about buying condoms were more likely to express an interest in the service. Of those who were not interested, approximat-
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