

Predictors of Women's Emergency Contraception Use and Men's Support of Partner's Use among College Students

Veronica Fitzpatrick, Michele Mouttapa, Sora Park Tanjasiri, and James Napoli

Department of Health Science, California State University, Fullerton

Abstract

Background: The unintended pregnancy rate in the United States is high, and emergency contraception (EC) is a birth control method that prevents unintended pregnancies. Despite the fact that many college campuses provide access to EC, undergraduate college students have relatively high rates of unintended pregnancies. **Purpose:** This study examined whether perceptions and knowledge regarding EC use were associated with women's intentions to use EC, and men's intentions to support their partner's EC use. **Methods:** This study utilized a convenience sample of 96 female and 118 male southern California community college undergraduate students. **Results:** Women had stronger intentions to use EC if they thought they could successfully obtain it at a pharmacy, while men reported they were more likely to support a partner's use if they thought that EC use is morally acceptable. **Conclusions:** The findings suggest that increasing women's knowledge about the accessibility of EC may lead to increased use of EC if needed. Men's moral stance regarding EC use may impact the degree to which they will support their female partners using EC. Further implications are discussed.

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Introduction

According to the Centers for Disease Control and Prevention (CDC, 2014), unintended pregnancies are those that were mistimed (wanted later) and/or unwanted. From 2001 to 2008, the percentage of total pregnancies that were unintended in the United States increased from 48% to 51%, which translates to additional tens of thousands of pregnancies in a given year (Finer & Zolna, 2014). In 2006, women who were of college age (e.g., 18 to 24 years old) had higher rates of pregnancies that were unintended (between 63% and 84%; Finer & Zolna, 2011). Although higher education has been associated with higher rates of contraceptive use (Wu, Meldrum, Dozier, Stanwood, & Fiscella, 2008), an estimated 1.7% of female college students reported experiencing an unintended pregnancy within the past 12 months in 2013 (American College Health Association-National College Health Assessment II, 2013). This suggests that continued efforts to prevent unintended

pregnancies among college students are highly needed.

The direct medical costs of unintended pregnancies were \$5 billion in 2002 (Trussell, 2007). Children resulting from unintended pregnancies have lower scores of overall well-being and poorer developmental outcomes (Hummer, Hack & Raley, 2004; de La Rochebrochard & Joshi, 2013). Problems accessing contraception and discontinuation of contraception have been commonly reported reasons for unintended pregnancies among women attending family planning and prenatal clinics (Iuliano, Speizer, Santelli & Kendall, 2006). In one study, underestimating the risk of pregnancy was the most frequently-reported reason for not using contraception among women seeking an abortion. Only 38% of the women reported knowing that they were at risk of getting pregnant when they had intercourse that later ended in pregnancy (Moreau, Bouver, Goulard & Bajos, 2005).

In response to the high prevalence of unintended pregnancies and its adverse health consequences, *Healthy People 2020* includes objectives to improve pregnancy planning, spacing, and preventing unintended pregnancy. One objective is to increase the proportion of pregnancies that are intended from approximately 50% in most recent assessments to 56% in 2020 (U.S. Department of Health and Human Services, 2014). Family planning efforts that can help reduce unintended pregnancy include increasing access to contraception and increasing correct and consistent use of contraceptive methods among those who are sexually active but wish to delay or avoid pregnancy (CDC, 2014).

Emergency Contraception

Emergency contraception (EC) is a form of contraception that can prevent pregnancy after unprotected sexual intercourse has occurred (Trussel, Ellertson & Stewart, 1996). The Food and Drug Administration (FDA) first approved EC prescription pills in 1998, but there is documented evidence of some use of hormonal contraceptives for EC as early as the 1960s (Ellertson, 1996). To maximize EC's effectiveness of preventing conception, oral EC needs to be taken within 12 hours following unprotected intercourse; but EC can be 75% effective for up to 72 hours (CDC, 2010).

EC has become increasingly accessible in recent years. In June 2009, the FDA approved "Plan B" to be available to women over the age of 17 without a prescription. In 2013, Plan B became available to females of all ages without a prescription (FDA, 2013). In 2011, approximately 62% of California community college student health centers provided EC to students (Trieu, Shenoy, Bratton & Marshak, 2011).

EC use is higher among college-aged women. Between 2006–2010, about one in nine (11%) sexually experienced U.S. women ages 15–44 years reported using EC at least once, compared to 23% of women between 20–24 years. EC use is also more common among those who never married, Hispanic or White women, and those who have attended college (Daniels, Jones &

Abma, 2013). In another study, approximately 28% of sexually active female university students had used EC (Hickey, 2009).

Despite the higher rates of EC use among college aged women, even higher rates of EC use are needed, evidenced by the increased percentage of unintended pregnancies from 2001 to 2008 (Finer & Zolna, 2014). Possible ways to increase EC use is to increase knowledge about EC facts and consider attitudes both women and men have regarding EC use.

Emergency Contraception Knowledge. A lack of knowledge about EC and its availability may lead to lower rates of use. In California, EC awareness has increased among women from 40% to 57% between 1999 and 2004 (Foster, Ralph, Arons, Brindis & Harper, 2006). Despite these encouraging findings, there is room for improvement. In one study, only half of the women surveyed were able to correctly identify 72 hours as the effective time period to take EC following unprotected sex (Whitaker, Berger, Armstrong, Felice & Adams, 2007). Another study indicated that several women were not able to distinguish RU-486 (the "abortion pill") from EC, which prevents conception in the first place (Hickey, 2009). Other gaps in knowledge documented among women that may inhibit their EC use include misperceptions about the effectiveness of EC, common EC side effects (including infertility), and that it is approved by the U.S. government (Miller, 2011; Shoveller, Chabot, Soon & Levine, 2007). In another study, the majority (60%) of students who had access to EC on their own college campus did not know that they could obtain it there (Hickey, 2009).

Attitudes toward Emergency Contraception. More favorable attitudes toward EC use may lead to a greater likelihood of using EC when needed. In one study, negative feelings toward pregnancy were the strongest predictors of recent EC use among women attending publicly funded family planning clinics (Whitaker et al., 2007). In another study among undergraduate college students, males were more receptive toward females using EC if they [males] were more knowledgeable about EC facts (Miller, 2011). Research has also shown that about 86%

of college aged students approved of EC in the event of contraception failure, and 68% approved of it in the event of unprotected sexual intercourse (Vahratian, Patel, Wolff, and Xu, 2008).

Men's Support Role in Contraceptive Use

Historically women are studied more frequently about EC than men, because women are the direct consumers of most contraceptives. It is important, however, to consider men's role in their female partners' contraceptive decisions. Previous research suggests that males have the potential to provide support (e.g., knowledge, advice, emotional support) and to assist their female partners in women's health issues. For example in one initiative, California's Male Involvement Program (MIP), there is a statewide effort to involve young adult males in teen pregnancy prevention efforts (Brindis, Barenbaum, Sanchez-Flores, McCarter & Chand, 2005). Another study of Pacific Islander adults suggested that a cervical cancer screening program which involves husbands/male partners can have a stronger impact on cervical cancer screening rates, beyond the impact of traditional cancer prevention strategies that aim only to increase women's knowledge about their own cancer risk (Tanjasiri, Mouttapa, Sablan-Santos, & Quitugua, 2012). In regards to EC, another study found that only 67.6% of men thought that EC could in fact prevent a pregnancy (Nguyen & Zaller, 2009). It is possible that by increasing men's knowledge about EC facts, they may be better able to provide social support for their female partners to use EC, if needed.

The Present Study

This study examined whether perceptions and knowledge regarding EC are associated with intentions to use EC among undergraduate student women, and men's intentions to support their partner's use of EC. It is important to examine EC use among female college students because the majority of them represent an age group (18-24 years) that is at highest risk for unintended pregnancies (Finer & Zolna, 2011). Furthermore, research is needed to determine whether college men are a feasible target population for pregnancy prevention efforts, as

Brindis and colleagues (2005) have found it to be the case among teenage males.

Methods

Study Design and Participants

This study utilized a quantitative, design with a convenience sample of southern California community college students who were enrolled in one of six personal health classes during the fall 2009 and spring 2010 semesters. Self-report surveys were administered to all eligible students (age 18 years and older) before any contraception information had been covered in the course curriculum. There were no sexual behavior-related exclusion criteria, since the main outcomes were intention-based and not behavior-based. For this reason, sexuality, current relationship status, and current sexual behavior were not used as predictive variables to measure intentions to use EC (for women), and supporting one's partner to use EC (for men). Out of the 216 individuals approached to participate in the study, 214 completed surveys for an overall response rate of 99% (100% for females and 98.3% for males).

Procedures

All procedures and instruments utilized in this study received IRB approval from the authors' institution prior to implementation. Permission to administer surveys was obtained from the Physical Education and Athletics department at the junior college where the data were collected. Permission was also obtained from the course instructor to visit each of her personal health classes and administer surveys to her students during class time. Surveys were six pages in length with approximately 50 questions.

The surveys were distributed and collected by the first author. All potential participants were briefed about the contents of the survey and given the opportunity to leave the classroom if they did not want to participate. All participants provided written informed consent, and were asked to fill out the survey on their own. The investigator stayed the entire time to answer any questions the participants may have had about the survey. Once a participant completed the survey, the investigator immediately collected

the survey and the participant left the classroom. No incentive was given for participation.

Measures

The independent variables were knowledge of EC, perceptions about EC, and past experiences with pregnancy, while the dependent variables were intentions to use EC (for women) and intentions to support partner's use of EC (for men).

Knowledge of EC. Knowledge of EC items were adopted from Vahratian, Patel, Wolff, and Xu (2008) and Hickey (2009). They consisted of six multiple choice questions including: "How long after unprotected vaginal intercourse does emergency contraception remain effective" (with five possible response options ranging from "1day" to "5 days"); and "What is the difference between emergency contraception (plan B) and RU-486 (mifepristone) the 'abortion pill?" Response options to the second question were: "There is no difference", "EC is taken only before a pregnancy has occurred and RU-486 is taken after pregnancy has occurred", "They can both terminate an already existing pregnancy", and "Neither RU-486 nor EC require a prescription, they are both over the counter." In addition, the following questions were asked: "Can you get emergency contraception pills or the 'morning after pill' over the counter from your drug store pharmacist without phoning or seeing the doctor first?"; "Can you obtain EC over the age of 17 in the state of California?"; "Can you obtain EC in any pharmacy in California?"; and "Is another person legally allowed to purchase EC for you, if needed?" Possible answers to these questions were "yes" and "no."

Perceptions about EC. These items were adapted from the Affective Responses toward Contraception Topics and Behavior Scale (Kelley, 1998). We adapted six of the items to specifically assess EC use perceptions. They were the following: "I feel emergency contraception use is morally wrong", "Using emergency contraception is much more desirable than having an abortion", "Emergency contraception encourages promiscuity", "Emergency contraception is worth using, even

if the monetary cost is high", "Teenagers should not need permission from their parents to obtain emergency contraception", and "Females who use emergency contraception are promiscuous." All of these items had the response options of "strongly agree", "agree", "undecided", "disagree", and "strongly disagree." Cronbach's alpha was .61 for these items.

Past Experiences with Sexual Intercourse, Pregnancy and Contraception Use.

Participants were asked the following: "Have you ever had vaginal intercourse (penis inserted into a vagina)", "have you (or a partner) ever been pregnant" and "have you (or a partner) ever used emergency contraception", and "have you (or a partner) ever had or experienced an abortion", with the response options of "yes" and "no" for all of these items. Survey items were adapted from the National Longitudinal Study of Adolescent Health, Waves 1 and 2 (Udry, 2003).

Intention to Use EC/Support Partner to Use EC.

Intention to use EC was the nt variable for females in this study, while intention to support one's partner to use EC was the dependent variable for males. The question that was asked of females was, "Would you ever use emergency contraception or the 'morning after pill' if your first method of birth control failed?" The question that was asked of males was, "Would you encourage your partner to use emergency contraception or the 'morning after pill' if your first method of birth control failed?" Both questions had answers of "yes" and "no." The first item was adapted from Vahratian, Patel, Wolff, and Xu (2008), and we created the second item to assess men's intentions to support EC use.

Demographic Characteristics. Demographic characteristics included age, ethnicity, major (or desired major), grade point average (GPA), parents' highest level of completed education, religious affiliation, and class standing (freshman, sophomore, or higher).

Analyses

All surveys were entered and analyzed using SPSS version 20.0 (IBM Inc., 2011).

Descriptive Statistics. Descriptive statistics were stratified by gender and included all demographic variables, independent variables, and dependent variables. Chi-square tests and t-tests were calculated to determine whether there were any gender differences on any of these variables.

Inferential Statistics. Inferential statistics were calculated to assess the relationship between each of the independent variables and the dependent variable, for each gender separately. Specifically, bivariate logistic regression models were run to assess the extent to which each knowledge item, each perception item, past experiences with pregnancy, contraception use, and all demographic variables, were related to intentions to use EC for females and support of EC for males. We chose the strategy of analyzing individual items rather than entire scales because in preliminary analyses, entire scale scores were not associated with the study outcomes. Last, two multivariate logistic regression models were performed, one for each gender separately, to determine which of the predictors and demographic variables that were significant in the bivariate analyses remained significant in multivariate analyses.

Results

Results are presented for females first, followed by males.

Females

Table 1 displays descriptive statistics of the sample. Among the 96 females, most were White (55.4%) and freshmen (37.9%). Average age was 22.35 (SD= 7.23). Nearly three-fourths of the females (73.4%) claimed they had penile-vaginal intercourse in their lifetime, and of those, 40.0% had used EC. Of those who reported using EC, the most common reason for doing so was “no birth control” (34.2%) and “condom slipped or broke off” (26.3%). Approximately one in eight participants reported unplanned pregnancies (12.8%), and nearly one in ten (9.5%) had at least one abortion. Compared to the male sample in this study, the female sample was significantly older ($p < .01$),

had a higher percentage of freshmen and a lower percentage of sophomores ($p < .01$), and lower rates of EC use (versus males’ partners using EC) ($p < .05$). See Table 1 for further details.

Table 2 displays bivariate and multivariate logistic regression results for EC use intentions. This table only includes those predictor variables that were significantly associated with at least one outcome (EC use intentions for females or support for partner’s EC use among men) in bivariate analyses. Among females, knowing that EC can be purchased without a prescription in California, ($p < 0.01$), the belief that EC is worth using even if the monetary cost is high ($p < .001$), and past EC use ($p < 0.05$) were associated with higher rates of intention to use EC. Conversely, the belief that EC is morally wrong ($p < .0001$) and having had an abortion previously ($p < 0.05$) were associated with lower rates of intentions to use EC. These associations remained significant in the multivariate model, with the exception of past EC use, which was not included to improve model fit. Nagelkerke R^2 for this model was .50, which indicates very strong model fit, specifically that the model explained half of the variation in EC use intentions in the sample.

Males

Table 1 displays descriptive statistics of the sample for males. Of the 118 participants, the most frequent demographic characteristics were White (57.7%) and being a sophomore (46.4%). Nearly one in 11 participants reported unplanned pregnancies (8.7%), and over one in 10 participants (10.3%) had experienced at least one abortion with a current or past sexual partner. Average age was 20.25 years (SD = 2.40). Over four fifths of the participants (81.6%) reported having penile-vaginal intercourse in their lifetime and among them, 58.3% had at least one sexual partner use EC. When asked about the reason for EC, participants reported “no birth control (31.9%)” and “condom slipped or broke off (31.9%).”

Table 2 displays bivariate and multivariate logistic regression results. For men’s bivariate results, the perception that using EC is morally wrong ($p < .001$) and that EC encourages

promiscuity ($p < .01$) were negatively associated with EC use intentions. Conversely, the perception that EC is worth using even if the monetary cost is high ($p < 0.01$) was positively associated with EC use intentions. All of these variables were included in the subsequent multivariate linear regression model.

For the multivariate linear regression model, none of the individual predictor variables were significantly related to men's intentions to support their partner's EC use. The predictor

that was closest to being statistically significant was EC use is morally wrong ($p = .056$). Nevertheless, Nagelkerke R^2 for this model was .486, which indicates very strong model fit, meaning that the model explained nearly half of the variation in EC support intentions in the sample. The lack of statistical significance for the individual predictors in this model is likely due to their high correlations with each other, even though multicollinearity was not an issue.

Table 1.

Demographic Characteristics of the Sample			
	Females (n = 96)	Males (n = 118)	χ^2 or t
Physical Education or Health major	38.9%	30.4%	1.62
Religious background			3.98
Catholic	30.9%	29.2%	
Non-Catholic Christian	27.7%	35.4%	
Other	19.1%	14.3%	
None	22.3%	21.2%	
Father was a college graduate	35.5%	40.3%	1.01
Mother was a college graduate	37.4%	33.0%	2.35
Year in college			13.31**
Freshman	37.9%	26.8%	
Sophomore	35.8%	46.4%	
Junior or Senior	20.0%	26.7%	
Race/Ethnicity			6.39
White	55.4%	57.7%	
Asian	20.5%	23.4%	
Hispanic	22.9%	13.5%	
Other	1.2%	5.4%	
Sexually Active	73.4%	81.6%	1.55
Ever taken EC/ partner had taken EC	40.0%	58.3%	4.62*
Experienced an unplanned pregnancy	12.8%	8.7%	.18
Experienced an abortion	9.5%	10.3%	1.83
High school GPA	3.19 (SD=0.60)	3.09 (SD=0.43)	1.17
Age	22.35 (SD=7.23)	20.25 (SD=2.40)	2.70**

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2.

Logistic Regression Results for Intentions to Use EC for Females and Intentions to Support EC Use for Males

	Females		Males	
	OR 95% CI	AOR ¹ 95% CI	OR 95% CI	AOR ² 95% CI
<i>Knowledge</i>				
I can obtain EC at any pharmacy in California without a prescription	4.21** 1.41-12.56	4.62* 1.15-18.52	1.36 0.15-12.18	--
<i>Perception</i>				
I feel emergency contraception is morally wrong	0.46*** 0.30-0.70	0.40** 0.22-0.73	0.26*** 0.12-0.57	0.44 0.19-1.02
EC encourages promiscuity	0.87 0.57-1.34	--	0.17** 0.05-0.53	0.33 0.09-1.21
EC is worth using even if the monetary cost is high	2.50*** 1.49-4.19	2.35* 1.19-4.65	2.42** 1.33-4.40	1.87 0.81-4.31
<i>Past Experiences with pregnancy</i>				
Experienced (or partner has experienced) at least 1 abortion	0.29* 0.09-0.92	0.07* 0.01-0.99	³	--
Have used (or partner has used) EC in the past	11.78* 1.45-95.74	--	³	--

Note. Adjusted odds ratios (AORs) were adjusted for other predictor variables that were significantly associated with EC-related outcomes in bivariate analyses.

¹Past EC use was not included in the multivariate model to increase model fit. Nagelkerke R²= .507.

²Nagelkerke R²= .486.

³Model could not be estimated due to high error terms.

Discussion

This study examined whether knowledge and perceptions of EC were associated with intentions to use EC among college undergraduate women, as well as men’s support of their partner’s EC use. The demographics for both females and males were comparable to each other for major, race/ethnicity, and sexual activity status.

Knowing that EC can be obtained at any pharmacy in California without a prescription was a significant predictor of women’s EC use intentions, but not men’s intentions to support their female partner using EC if needed. This finding suggests that most likely, women are primarily responsible for obtaining EC if needed. Hence, raising women’s awareness that EC is available over the counter without a

prescription may be an effective strategy to increase EC use in circumstances where they are at high risk of becoming pregnant. Additionally, more advertisements about the availability of EC on college campuses that do provide EC might be helpful.

Among the women sampled in this study, the perception that EC use is morally wrong was related to lower rates of intentions to use EC if needed. Similarly in another study (Campbell, Busby & Steyer, 2008), 38% percent of respondents stated that they would use EC only if they knew it worked before fertilization or implantation. Furthermore, in our study we found the belief that EC is worth using even if the monetary cost is high was associated with EC use intentions. It is possible that endorsement of this belief is a proxy for being knowledgeable of how EC works (e.g., that it

prevents rather than terminates a pregnancy), and that EC is effective if used in the intended manner (e.g., within 72 hours of last sexual intercourse). Thus, the findings of our study, combined with findings of previous research, indicate that women's willingness to use EC might increase if they were better educated about how EC works, where it can be purchased, and its effectiveness.

We also found that past abortions were associated with lower rates of EC use intentions. It is possible that women with an abortion history lack knowledge regarding how EC works, hence their lack of intention to use EC if needed. In one study of women ages 18-35, ambivalence regarding contraception use was linked to lower rates of contraception use (hence, higher risk for pregnancy and subsequent abortion) (Neustadt, Holmquist, Davis, & Gilliam, 2011). In other studies outside of the U.S., the majority of women who received post-abortion counseling were either unaware of modern contraceptive methods or were not using them at the time of their pregnancy (Ceylan, Ertem, Saka, & Akdeniz, 2009; Mayi-Tsonga, Obiang, Minkobame, Ngouafo, Ambounda, & DeSousa, 2014). However, following counseling, the majority of them accepted and used contraception at follow-up. These findings suggest that post-abortion counseling is strongly needed among women who have experienced an abortion to increase their intentions to use contraceptives, including EC if needed.

Our results for males suggested that moral objections to EC use were most predictive of their intentions to support their sexual partners in using EC. Previous research has indicated that although college-aged, single men generally express a strong desire to prevent pregnancy, there are several other dynamic factors (e.g., religious upbringing, socioeconomic circumstances, degree of family connectedness, and quality of peer relationships) that dictate whether or not men will actually support contraceptive use (Raine, Gard, Boyer, Haider, Brown, Hernandez & Harper, 2010). Hence, sexual health intervention specialists may consider encouraging college students to have discussions about contraception options with

their potential sexual partners. Such discussions may help men and women choose sexual partners who have more compatible moral beliefs regarding EC use.

Although we did not seek to estimate rates of EC use among college students, it is worth noting that self-reported rates of EC use was relatively high among our sample compared to other samples in previous studies. Specifically, 40% of the sexually active females in our sample reported lifetime EC use, compared to only 23% in a nationwide sample of sexually active women ages 20-24 in 2006-2010. The high rate of self-reported EC use in our study could be attributed to increasing availability and popularity of EC during the study period (2009-2010), as well as the study setting (a large public college in southern California, as opposed to a smaller, religious-based college), and the classes surveyed (personal health classes, which may indicate an increased interest in health-related topics compared to the average college student). The relatively high rate of EC use reported by males in this study (regarding their female partners' use of EC) is difficult to interpret, because it is not clear whether male partners are reliable reporters of their partners' EC use.

Limitations

Some limitations of the present study need to be considered. First, the design of this study did not allow us to determine whether our predictor variables preceded EC use intentions among women and support for EC use among men. Second, this study was limited by the self-reporting accuracy of the participants, which may be subject to recall bias, a lack of knowledge (e.g., males' knowledge of their female partners' EC use), and answering questions in a socially desirable manner. Third, the relatively small sample sizes utilized in this study resulted in relatively large confidence intervals for the odds ratios derived from our analyses. Larger sample sizes would have provided more reliable estimates of the relationships between the predictors and EC-related outcomes in this study. Fourth, this study included individuals who were primarily between the ages of 18 and 23 and were enrolled in an introductory general education course in a

community college in southern California. Hence, the results may not be generalizable to non-college-aged individuals, those not attending college, students who live in a more traditional university setting (e.g., not a commuter campus), those who attend religious-affiliated universities, and those who reside in regions other than southern California.

Conclusion

Our findings suggest that males' moral stance regarding EC use is predictive of their intentions to support their sexual partners in their use of EC. This finding is highly relevant to future unintended pregnancy prevention efforts, since male partners' support for EC use has been related to women's actual use of EC (Pratt, Stephenson, & Mann, 2014). Hence, male partners appear to play a significant role in contraceptive decisions. Furthermore, intervention strategies utilizing media and friendship networks to promote EC use are needed. Such approaches are likely to be effective, as studies have determined that adolescents get most of their contraceptive information from friends and coital partners

(Ryan, Franzetta, Manlove & Holcombe, 2007; Whitley, 1990).

Encouraging male involvement in all contraceptive decisions and expanding accessibility to EC may help young men and women prevent unintended pregnancies. For example, social support interventions that involve male partners are already being implemented to successfully increase women's rates of breast self-examinations and mammograms (Kagawa-Singer, Tanjasiri, Valdez, Yu & Foo, 2009). Involvement of males in contraception efforts, including EC use, appear to be promising, because the evidence provided in this study and other studies (e.g., Neustadt, Holmquist, Davis, & Gilliam, 2011; Pratt, Stephenson, & Mann, 2014) suggest that a men and women think differently about contraception and a woman's relationship with her male partner may play a role in contraceptive decisions.

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Author Information

Veronica Fitzpatrick, MPH, CHES
Department of Health Science
California State University, Fullerton

*Michele Mouttapa
California State University, Fullerton
Department of Health Science
PO Box 6870, Fullerton, CA 92834
E-mail: mmouttapa@fullerton.edu.

Sora Park Tanjasiri, DrPH, MPH
Department of Health Science
California State University, Fullerton

James Napoli, MPH(c)
Department of Health Science
California State University, Fullerton

* corresponding author