Determinants and correlates of preventive behaviors at first sex with a first partner and second partner: Analysis of the FECOND Study

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Abstract:

Background

This study uses a unique population based dataset to study transitions in condom and contraceptive use in the early stages of sexual life in France.

Methods

Data are drawn from the 2010 French national sexual and reproductive health survey comprising a random sample of 8,645 respondents ages 15-49 years. Our analyses include 1,834 participants aged 15-29 years who reported at least 2 lifetime sexual partners and a smaller subset of 1,596 people who report contraceptive use throughout their first partnership. We use logistic regression models and generalized estimating equation models to investigate the determinants of any method use, of condom use, and of medical method contraceptive use at first sex with first and second partners as well as the predictive value of contraceptive use in first partnership for future usage. We also explore individual contraceptive trajectories from first to second partnerships.

Results

Our results reveal a 45% decline in preventive behaviors between first and second partner, driven primarily by a decrease in condom use. The proportion of condom users at first sex dropped from 91.5% with first partner to 81.5% with second partner. This decline is partially offset by an increase in medical method use at first sex (from 29.1% with first partner to 42.4% with second partner). Usage of any method at first partnership was an important predictor for use in second partnership (OR=8.13 for males, OR=4.15 for females, p<0.05). In addition, stopping any method during first partnership significantly reduced the odds of using any method at first sex with second partner (OR=0.5 for males p=, and 0.1 for females, p<0.05). Gender differences in usage patterns are noticeable – with boys more likely to report condom use in first and second partnership and girls are more likely to switch to medical methods.

Background:

At over 90% usage at first sex, contraceptive use in France among adolescents and young adults is quite high. The outbreak of the HIV epidemic in the 1980s has strongly

contributed to the rapid uptake of condom use at sexual debut, which represents the method of choice in France before age 18, replaced by the pill once young people transition into more durable relationships (Bajos et al, 2012). While widely successful in limiting the spread of HIV among youth, the focus on STI prevention has overshadowed other sexual risks, in particular unintended pregnancy.

Despite high contraceptive coverage, nearly one in three pregnancies are reported as unintended in France (Bajos et al., 2014), mostly due to gaps in use of contraception, use of less effective methods or to inconsistent use of user-dependent methods (Bajos et al, 2003, Bajos et al, 2006, Goulard et al, 2006, Moreau et al, 2010). Simultaneously approximately half of these unintended pregnancies end in abortion (Bajos et al., 2014). Abortion rates, highest among women in their 20s, have been on the rise since the mid 1990s among young women (Vilain, 2011), peaking in the mid 2000s, raising concern over the lack of an integrated approach to sexual health among young people.

Though most studies focus on preventive behaviors at first sexual intercourse, shown to be a marker for later sexual behaviors (Shafi et al, 2004, 2007; Svare, 2002), little is known about the transitions during early sexual life. This study uses a unique dataset from the FECOND study in which French adolescents and young adults were asked about condom use and other contraceptive method use at first sex, at subsequent sex with the same partner and at first sex with second partner in order to better understand the transitional probabilities of moving from an STI focused prevention strategy to more effective pregnancy prevention methods. Specifically, we have three aims. First, we describe the factors associated with different protective strategies at first sex with a new partner (either first or second partner). Second, we explore individual trajectories in protective behaviors from first to second partner – including within first partnership, and discuss what these changes might mean for pregnancy and STI prevention in the French context. Third, we explore the predictive nature of contraceptive use patterns with first partner on preventive behaviors with second partner, controlling for other predictors of contraceptive use.

Methods:

The data in this analysis come from the FECOND study, a national probability survey conducted in France in 2010. A sample of 8,645 individuals between 15 and 49 years of age were identified using random digit dialing (including both landline and cell-phone users). One

individual per phone number was selected for participation. After giving oral consent, participants responded to telephone interviews, which lasted an average of 41 minutes.

The present analysis is limited to a subset of participants in the FECOND study. First, participants were included who were heterosexuals, under the age of 30 (this was the only group to be asked about first and second partners), who were sexually experienced, and who reported their history of contraceptive use with their first partner ("Population 1:" n=2611 participants). We further selected respondents who reported at least 2 sexual partners with whom they had more than a "one-night stand" (as they were only asked about condom use and were not asked about other methods) and who reported their contraceptive use at first sex with both partners ("Population 2:" n=1,834). Finally, in order to explore the transitions in preventive behaviors within first partnership and between first and second partner we limited our analyses to the population that reported their contraceptive use (or lack of use) at first sex, subsequently within their first partnership and at first sex with second partner ("Population Switch:" n=1,596). The flow chart explaining the creation of these 3 samples is shown below in Figure 1.

Figure 1: Flow Chart for Study Population
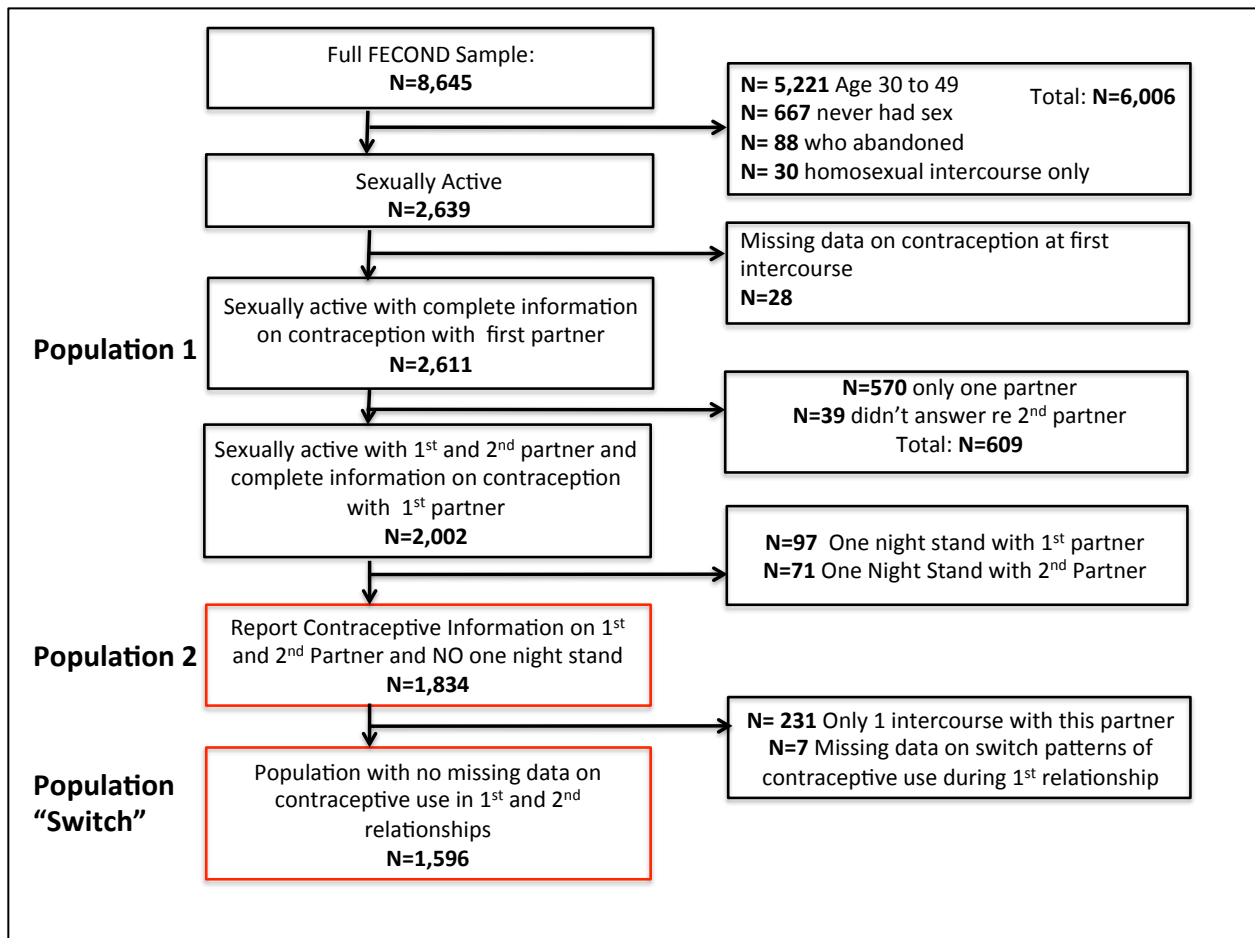
Measures

Participants responded by phone to a questionnaire that lasted an average of 41 minutes and covered a range of sexual and reproductive health topics, including current and past contraceptive usage, pregnancy histories, general health issues and reproductive health care service utilization. Young people under the age of 30 years were asked to describe their first sexual experiences, including age at first sexual intercourse, and use of contraception – including medical methods and condoms – in the course of their first 2 partnerships.

Our outcome measures relate to the use of any form of contraception, condom use, and the use of a medical form of contraception (hormonal in this population) at first sex with first partner and at first sex with second partner. Medical methods are primarily oral contraceptive pills but also include the IUD, the contraceptive patch, the ring, the implant, depo provera, and emergency contraceptives. Data was collected on a variety of barrier and natural methods including the male and female condoms, withdrawal, rhythm method, abstinence, spermicides, sponges, and diaphragms or cervical caps. In this analysis, we focus on condom use specifically rather than barrier methods more broadly in order to differentiate STI prevention from pregnancy prevention, as condoms are the only methods preventing STI acquisition. Very few respondents relied on barrier methods other than the condom (for each population this was <2% of the sample), which limited our ability to explore other barrier methods in a separate category.

Our predictor variables relate to the socio-demographic characteristics of respondents (educational level, country of birth, religious beliefs), considered relatively stable over time in order to reflect the respondent's situation at the time of sexual debut. We also considered their family background (paternal education and maternal education) and social environment during adolescent years. In particular, openness within family and social environment in regards to SRH was assessed by asking respondents to recall the ease of discussing sex with their mothers and fathers at the age of 15. In order to also control for period effects, current age is also controlled for. In addition, we include age at first sexual intercourse as a continuous variable, as previous studies have shown differences in contraceptive usage at first sex by age at the event (True et al, 2014).

Statistical

First, we used descriptive and bivariate statistics to describe the factors associated with the use of any method (versus not), the use of condoms (versus not), the use of a medical form of contraception (versus not), at first sex with first partner or second partner. We also explored

factors related to the use of a medical form of contraception as opposed to a condom alone, among respondents who used a method at first sex with first partner or second partner. We used multivariate logistic regression to assess the independent factors associated with contraceptive behaviors and more specifically conducted separate models examining factors related to any use, condom use, use of medical methods of contraception at first sex with first or second partner. We also examined the independent effects of these factors on medical method use relative to condom use at first sex with first or second partner among contraceptive users.

After specifying the best fitted model for each of these outcomes (using goodness of fit and AIC criteria), we fitted generalized estimated equation regression models (xtgee command in stata) to account for the non-independence of observations between first and second partner. With only two time points in our analysis, we used an exchangeable correlation structure. We further explored the difference in the determinants of these preventive behaviors between first and second partner. Analysis are stratified by gender, in order to uncover the potential differences in factors informing preventive practices towards the risk of infection as compared to preventive practices towards the risk of pregnancy between girls and boys.

As a complement of cross sectional analysis of partnerships, a longitudinal analysis was conducted to explore subject-specific determinants of preventive behaviors as well as an analysis of individual changes in these behaviors (from first to second partner). We described switching patterns in any method use, in condom use and in medical contraceptive use within first partnership (from first sex to subsequent intercourse) and between first and second partner. In addition, we assessed the effect of changing contraceptive behaviors with first partner on future behaviors with second partner. This switching analysis was only carried out for respondents who had used contraception at first intercourse with first partner since the number of individuals who did not use any form of contraception at first sex with first partner was too small to create stable models. All analyses were carried out separately for males and females as we anticipated that the predictors of contraceptive trajectories differed by gender.

Results:

The description of the study populations (the initial 2,611 participants, the 1,834 respondents with two partners and the 1,596 individuals who report complete contraceptive information on both first and second partner) is provided in Table 1. The mean age of the 1,834 participants was 23.2 years [23.0-23.4]. A significant proportion of young people had not

completed high school at the time of the survey, with less than 30% of the sample having finished colleged or graduate school. On average, 47% of participants reported that it had been easy to talk with their mother about sexuality, while a slightly smaller number – 42% - stated that they had not wanted to talk about sex with her at the time. Just over a quarter felt comfortable talking with their father, although more than half declared they had not wanted to talk about it with him at the time. The mean age at sexual debut was different for males and females at 16.3 and 16.8 respectively ($p<0.05$).

The characteristics of the restricted population of 1,834 respondents were similar to the larger population of 2,611. Likewise, the subsample of individuals who were included in the analysis of switching patterns (n=1,596) were also similar. The comparisons between the three samples are shown in Table 1.

A vast majority of young people had used a condom at first intercourse (either alone – 66% - or in combination with hormonal methods – 22%). Very few respondents had used medical methods or other forms of contraception alone (5%). Less than 1 in 10 (7%) indicated not using any form of contraception at first intercourse with their first partner (Table 1). The same analysis restricted to the subpopulation that reported at least two lifetime partners (n=1,834) yielded similar results (Table 1). Likewise, results among the 1,596 respondents who were included in the switching analysis showed similar patterns (Table 1).

Analysis of preventive behaviors at first sex with second partner among the 1,834 who reported a second partner shows a decline in use of any method (4.3% non use of contraception at first sex with first partner versus 7.5% non use of contraception at first sex with second partner). Because condom use is so common at first sex, this is mostly driven by a drop in condom use (8.5% non use of condom at first sex with first partner versus 18.5% report non use of condom at first sex with second partner) and offset by an increasing proportion of medical method use (29.1% versus 42.4%). The results – both in terms of percentages and direction of switches – for the sub-population of people who report switching (n=1,596) are very similar (data not shown).

The analysis of factors associated with the use of any method at first sex with first or second partner is summarized in Table 2. This analysis includes 3,668 datapoints (corresponding to all first sexual encounters with both first and with second partner among the 1,834 defined as population 2). Results are presented separately for boys and girls. Predictors of any method use and condom use were very similar as condom use was by far the most popular method used at

first intercourse with a new partner. Use of any method or use of condoms increased with educational level for both boys and girls with an additional effect of father's educational attainment for girls. Results also suggest greater use of any method or condom use among participants born in France, as compared to those who were foreign born. Ease of talking with mother was associated with greater use of any method for girls but had no effect for boys. Ease of talking with mother was not associated with condom use, while ease of talking with farther was not related to any of the outcomes explored (data not shown).

Factors associated with the use of medical methods at first sex, while predictive for girls, were generally not significant among boys, with the exception of age at sexual debut. Girls born in France who reported ease of talking to mother about sexuality were more likely to use medical methods than others. Older women (25-29 years at the time of the survey) were also more likely to rely on a medical method than others. Likewise girls who initiated sexual intercourse at an older age were more likely to have used a medical method at first sexual intercourse. Differences in the predictors of medical method use as compared to condom use are further reflected in the last 2 columns of Table 2, which confirm a period effect in the choice of contraceptive methods among girls (with a decline in the use of medical method among younger generations), the role of age at sexual debut and mother's openness to talking about sexuality with their adolescent girls as distinctive predictors of medical method use as compared to condom use.

There were no differences in the factors associated with contraceptive use at first sex between first and second partners. However, analysis reveals the important differences in contraceptive and condom use patterns between first and second partnerships, with a 50 to 60% decrease in the odds of using condoms at first sex with second partner as compared to first partner while the odds of using a medical method at first sex with second partner were 1.5 to 4 times higher than at first sex with first partner. Overall, the increase in medical method use did not seem to outweigh the decline in condom use, as the odds of using any method decreased by 40% between first and second partner. These results were similar by gender.

Analyses of switching patterns within first partnership and across first and second partnerships are presented in Figures 2 to 7. They were conducted among the 1,596 respondents who had 2 sexual partners with whom they had intercourse more than once. Switching patterns are presented separately by gender and by outcome (any method, condom use and medical method use).

Overall, a majority of respondents did not switch within or across partnerships, whether we consider any method use, condom use or medical method use: 79.7% of males and 83.3% of females never switched with respect to any method use (Figures 2, 3); 60.7% of males and 51% of females never switched with respect to condom use (Figures, 4, 5), 62.8% of males and 60.4% of females never switched with respect to medical method use (Figures 6, 7).

Some switching did occur however – both within and across relationships. Transitions in condom usage within first partnership were the most common with over a quarter of boys (28%) and more than a third of girls (36.4%) stopping condoms before the end of their relationship (and 2.7% of boys and 2.9% of girls *starting* condom use after first sex) (Figures 3,4). Over a quarter of females (28%) and 23% of boys described transitions in medical contraceptive methods within first partnerships with almost all reflecting uptake of medical methods after first intercourse (24% of females and 20% of males). Approximately 12% of boys and 10% of girls stopped using any method within first partnership, while 2.1% of boys and 1.8% of girls started using a method with first partner after fist sexual intercourse.

Analysis of switching patterns across partnerships, comparing first sexual intercourse with first and second partner show little change, with only 6.3% of boys and 5.4% of girls switching from any method to no method between first and second partner, while 2.4% of boys and 2% girls switched from no method to any method. The same analysis exploring condom use reveals a significant drop in condom use between first and second partner (11.4% for boys and 16.2% for girls), while 3.6% of boys and 3.8% used condom at first sex with second partner while they had not done so at first sex with their first partner. Finally, the uptake of medical method at first sex from first to second partner was observed for 13.6% of boys and 23.3% of girls. Conversely, 7.7% of boys and 5% of girls had used a medical method at first sex with first partner but not with second partner.

Analyses of the predictive nature of preventive behaviors with first partner on subsequent preventive behaviors at first sex with second partner are presented in Tables 3 and 4. Demographic variables described in table 2 are controlled for in all of these analyses and the analyses are all stratified by gender. Across all outcome measures (any method, condom use or medical method use) usage at first sex is highly predictive of use at first sex with second partner (with OR ranging from 5.1 to 8.1 for boys and 3.6 to 10.8 for girls shown in Table 3). Further analysis including switching patterns within first partnerships, among those who had used contraception at first sex with first partner, also reveals the predictive effect of switching

behaviors within first partnership on subsequent preventive behaviors at first sex with second partner. Specifically, stopping any method, stopping condom use or stopping a medical method with first partner was predictive of non-use at first sex with second partner. This was significant for all associations considered except for males using any method (with OR ranging from 0.1 to 0.4 for boys and 0.2 to 0.4 for girls shown in Table 4).

Discussion:

This study reveals the rapid changes in preventing behaviors during the early stages of sexual life, towards the uptake of more effective contraceptive methods and a decline in condom use over time. This is a positive shift for the purpose of pregnancy prevention but challenging to combine with a message of effective STI prevention. The decline in condom use is concerning as the risks of STIs are higher in this age group (Williams and Fortenberry, 2013; Crosby et al, 2012). Likewise, the positive impact of the increase in medical methods may be offset by the slight increase in unmet need for contraception, which likely contributes to a significant proportion of unintended pregnancies (Bajos et al, 2003; Moreau et al, 2012).

Our results also indicate that preventive behaviors, whether to prevent acquisition of an STI or a pregnancy are socially determined with sustained inequalities in use of any method or use of the condom at first sex by immigration and education status over time. Our results also indicate young men and women report different contraceptive practices at first intercourse, which may be a function of the fact that medical methods are primarily female controlled methods and condoms are primarily male controlled methods; however, it may also suggest a need to support women in using condoms with their partners in order to prevent STI transmission and a need to educate men about how to communicate with their partners about medical method use in order to focus on the prevention of unwanted pregnancies.

Beyond these cross-sectional observations, the analysis of trajectories of contraceptive use over time sheds new light on the factors contributing to stability of contraceptive practices over time as well as those that inform increase or decrease in pregnancy and STI prevention over time. The study presents new information about the important shifts in preventive behaviors that operate within first partnerships (in particular the decline in condom use) that have sustainable effects on preventive behaviors with a new partner. For girls, especially, the transitions from condom to oral contraception seems to reduce their likelihood of using a condom with a new partner, suggesting the need to emphasize dual protection messages to prevent STI transmission

in the context of new partnerships. The lower frequency of medical method use by boys also suggests a lack of communication about pregnancy prevention with their partners. Further research about boys' engagement and participation in contraceptive decisions at sexual debut is warranted to support increased utilization of dual protection.

While the study offers new insights on young people's early contraceptive trajectories, the retrospective nature of the data does not provide a rich source of contextual information to investigate time varying individual, relationship and social circumstances informing these behaviors. In particular, preventive sexual practices are negotiated between partners and therefore depend on the characteristics of the partner and the nature of the relationship. An important missing feature in this analysis is timing, type, and duration of partnerships, likely to influence, switching patterns with a specific partner and the association observed across partnerships. This information is needed to offer insight into which types of partnerships may be more amenable to messages about usage of condoms or effective contraceptive methods.

References:

Bajos N, Leridon H., Goulard, H., Oustry P., Job-Spira, N.,Cocon group. Contraception: from accessibility to efficiency. *Human Reproduction* 2003*,* 18**,** 994-999.

Crosby, RA, Weathers, C, Cliendo, AM, and Shrier, LA. Condom effectiveness against non-viral sexually transmitted infections: a prospective study using electronic daily diaries. *Sexually Transmitted Infections*, 2012. 88:484-489.

Mmari, K and Sabherwal, S. A Review of Risk and Protective Factors for Adolescent Sexual and Reproductive. *Journal of Adolescent Health*, 2013. 53: 562-572.

Moreau C, Trussell J, Desfreres J, Bajos N. Patterns of contraceptive use before and after an abortion: results from a nationally representative survey of women undergoing an abortion in France. *Contraception*, 2010 Oct;82(4):337-44.

Shafii, T, Stovel, K, and Holmes, K. Association Between Condom Use at Sexual Debut and Subsequent Sexual Trajectories: A Longitudinal Study Using Biomarkers. *American Journal of Public Health*, 2007 ; 97 (6): 1090-1095.

Shafii, T, Stovel, K, Davis, R and Holmes, K. Is Condom Use Habit Forming? Condom Use at Sexual Debut and Subsequent Condom Use. *Sexually Transmitted Diseases*. 2004; 31(6): 366–372.

Svare, EI, Kjaera, SK, Thomsen, BL and Bock, JE. Determinants for non-use of contraception at first intercourse; a study of 10,841 young Danish women from the general population. *Contraception*. 2002 ; 66: 345–350.

Vilain A., "Les interruptions volontaires de grossesses en 2008 et 2009". *Etudes et résultats*, 2011, 765.

Williams, RL and Fortenberry, JD. Dual Use of Long-Acting Reversible Contraceptives and Condoms Among Adolescents. *Journal of Adolescent Health*, 2013. 52(4): S29-S34.

Table 1: Description of Three Study Populations

		Respondents who had a first partner	Respondents with a 2nd partner and no 1 night stand	Respondents with a 2nd partner and >1 act with 1st partner
		n=2,611	n=1,834	n=1,596
Age	14 – 17	9.9%	8.5%	8.1%
	18 - 19	17.2%	16.0%	15.7%
	20 - 24	32.1%	32.4%	33.0%
	25 - 29	40.9%	43.0%	43.3%
Sex	Women	49.9%	48.7%	48.4%
	Men	50.1%	51.3%	51.6%
Place of birth	France (both mainland and overseas)	91.5%	91.9%	93.7%
	foreign	8.5%	8.1%	6.3%
Current Level of education	<high school	44.9%	44.2%	43.1%
	high school	27.9%	27.2%	27.4%
	college	15.0%	16.4%	16.6%
	grad school	12.3%	12.2%	12.8%
Mother's education	no diploma	19.5%	18.5%	17.4%
	<high school	31.8%	33.5%	33.2%
	high school	17.5%	17.7%	18.7%
	college	26.4%	25.9%	26.5%
	Don't know	4.7%	4.5%	4.3%
Father's education	no diploma	17.7%	17.3%	16.4%
	<high school	32.6%	32.2%	32.7%
	high school	14.1%	15.0%	14.9%
	college	24.8%	25.6%	26.4%
	Don't know	10.8%	10.0%	9.6%
Talk with mother about sexuality	easily	46.6%	47.0%	49.0%
	with difficulty	9.6%	9.9%	9.6%
	didn't want to talk about it	42.4%	42.1%	40.3%
	didn't see the mother	1.3%	1.0%	1.2%
Talk with father about sexuality	easily	26.1%	27.1%	28.4%
	with difficulty	11.5%	10.5%	11.0%
	didn't want to talk	58.6%	59.1%	57.1%
	didn't see the father	3.8%	3.3%	3.5%
Talk with friends about sexuality	easily	76.8%	78.4%	79.7%
	with difficulty	8.2%	8.4%	8.1%
	didn't want to talk	15.0%	13.1%	12.2%
Importance of religion	very important	5.4%	4.3%	3.6%
	not very important	94.6%%	95.7%	96.4%
Method used at 1st sex (first partner)	no method	7.0%	5.9%	4.0%
	barrier method (excluding condom)	1.6%	1.2%	1.3%
	condom alone	66.1%	67.7%	67.8%
	medical method alone	3.6%	2.7%	3.0%
	medical and condom	21.8%	22.5%	23.9%
Ever Used Condom	yes	91.4%	93.4%	94.9%
	no	8.6%	6.6%	5.1%

Table 2: Factors associated with any use of contraception, with any use of condom and with any use of medical methods of contraception at first intercourse with first or second partner: analysis among respondents who reported a first OR second partner (n =1834)

VARIABLES	Any Method Use (vs. nothing) (1: male) odds ratio	Any Method Use (vs. nothing) (2: female) odds ratio	Condom Use (vs. non-condom) (3: male) odds ratio	Condom Use (vs. non-condom) (4: female) odds ratio	Medical Method Use (vs. non-medical method) (5: male) odds ratio	Medical Method Use (vs. non-medical method) (6: female) odds ratio	Medical Method Use (vs. condom use) (7: male) odds ratio	Medical Method Use (vs. condom use) (8:female) odds ratio
Current Age 14-17 years (ref)								
18-19 years	1.11 (0.38 - 3.29)	0.96 (0.42 - 2.22)	0.74 (0.31 - 1.76)	0.88 (0.43 - 1.79)	0.80 (0.35 - 1.85)	0.85 (0.46 - 1.57)	0.79 (0.34 - 1.82)	0.78 (0.42 - 1.46)
20-24 years	0.98 (0.40 - 2.39)	0.87 (0.39 - 1.94)	0.58 (0.27 - 1.25)	0.65 (0.35 - 1.20)	1.11 (0.52 - 2.36)	1.96* (1.10 - 3.46)	1.14 (0.53 - 2.46)	2.00* (1.11 - 3.59)
25-29 years	0.90 (0.34 - 2.37)	0.73 (0.34 - 1.58)	0.72 (0.31 - 1.64)	0.60 (0.32 - 1.14)	0.94 (0.44 - 2.01)	2.39** (1.32 - 4.31)	0.96 (0.45 - 2.07)	2.56** (1.39 - 4.71)
Age at 1st Sex	1.02 (0.86 - 1.20)	1.12 (0.98 - 1.28)	0.95 (0.83 - 1.10)	1.08 (0.99 - 1.18)	1.13* (1.03 - 1.24)	1.15*** (1.06 - 1.25)	1.15** (1.04 - 1.27)	1.15** (1.05 - 1.26)
French	5.01** (1.85 - 13.57)	2.91** (1.34 - 6.29)	3.99** (1.67 - 9.52)	1.76 (0.93 - 3.32)	1.43 (0.59 - 3.46)	3.55*** (1.69 - 7.44)	0.99 (0.41 - 2.41)	2.78** (1.33 - 5.85)
Education <High School (ref)								
High School	3.39*** (1.69 - 6.80)	1.99* (1.14 - 3.48)	3.26*** (1.92 - 5.53)	1.98*** (1.32 - 2.98)	0.87 (0.57 - 1.33)	1.13 (0.79 - 1.62)	0.78 (0.50 - 1.20)	0.95 (0.65 - 1.37)
College	2.60* (1.24 - 5.46)	3.73*** (1.90 - 7.33)	2.04* (1.14 - 3.64)	1.87** (1.20 - 2.91)	1.27 (0.81 – 2.00)	1.19 (0.81 - 1.76)	1.12 (0.70 - 1.79)	0.96 (0.64 - 1.45)
Graduate School	2.07 (0.75 - 5.67)	6.50*** (2.44 - 17.29)	2.55* (1.15 - 5.63)	2.92*** (1.64 - 5.21)	0.74 (0.38 - 1.45)	1.03 (0.64 - 1.67)	0.65 (0.32 - 1.31)	0.78 (0.48 - 1.26)
Father's Education No diploma (ref)								
<High School	2.04 (0.95 - 4.41)	1.87* (1.03 - 3.40)	1.43 (0.75 - 2.76)	2.17*** (1.44 - 3.28)	1.33 (0.79 - 2.23)	1.17 (0.81 - 1.71)	1.21 (0.71 - 2.06)	1.04 (0.70 - 1.54)
High School	1.72 (0.74 - 4.00)	2.07* (1.04 - 4.11)	1.13 (0.56 - 2.31)	2.22** (1.37 - 3.62)	1.37 (0.76 - 2.49)	1.44 (0.90 - 2.31)	1.27 (0.69 - 2.33)	1.26 (0.77 - 2.05)
College	3.04* (1.25 - 7.37)	2.19* (1.15 - 4.18)	2.02* (1.00 - 4.07)	2.26** (1.39 - 3.67)	1.19 (0.69 - 2.08)	1.09 (0.72 - 1.66)	1.07 (0.61 - 1.89)	0.93 (0.61 - 1.44)
Don't Know	0.61 (0.26 - 1.42)	1.76 (0.83 - 3.72)	0.49 (0.23 - 1.07)	1.90* (1.06 - 3.41)	1.46 (0.71 - 3.00)	1.65 (0.96 - 2.85)	1.67 (0.78 - 3.60)	1.48 (0.84 - 2.60)
Comfort Talking with Mother about Sexuality With ease (ref)								
Difficulty	1.14 (0.35 - 3.69)	0.45* (0.23 - 0.88)	2.19 (0.69 - 6.98)	0.98 (0.59 - 1.64)	0.81 (0.40 - 1.62)	0.46*** (0.29 - 0.72)	0.81 (0.39 - 1.68)	0.46*** (0.30 - 0.73)
Didn't want to	0.62 (0.29 - 1.34)	0.48** (0.29 - 0.79)	0.90 (0.50 - 1.64)	0.78 (0.55 - 1.12)	0.93 (0.63 - 1.37)	0.55*** (0.41 - 0.73)	0.94 (0.62 - 1.43)	0.60*** (0.45 - 0.81)
N/A (mother wasn't there etc.)	1.49 (0.30 - 7.35)	0.15** (0.05 - 0.46)	1.61 (0.38 - 6.82)	0.48 (0.14 - 1.67)	0.32 (0.07 - 1.52)	0.45 (0.14 - 1.47)	0.33 (0.07 - 1.6`)	0.75 (0.21 - 2.74)
Comfort Talking with Father about Sexuality With ease (ref)								
Difficulty	0.90 (0.35 - 2.276)		0.66 (0.26 - 1.66)	0.94 (0.51 - 1.75)	0.99 (0.53 - 1.85)	1.14 (0.71 - 1.85)	1.01 (0.53 - 1.95)	0.98 (0.59 - 1.64)
Didn't want to	0.90 (0.43 - 1.87)		0.76 (0.43 - 1.38)	0.82 (0.52 - 1.32)	1.02 (0.68 - 1.51)	1.08 (0.76 - 1.54)	1.04 (0.68 - 1.58)	1.02 (0.70 - 1.49)
N/A (father wasn't there etc.)	5.06 (0.87 - 29.2)		1.92 (0.52 - 7.08)	1.76 (0.64 - 4.83)	0.86 (0.34 - 2.18)	0.47 (0.19 - 1.16)	0.75 (0.28 - 2.00)	0.42 (0.16 - 1.05)
Importance of Religion	1.15 (0.36 - 3.63)	0.83 (0.35 - 1.98)	1.19 (0.48 - 2.96)	0.52 (0.22 - 1.20)	0.70 (0.28 - 1.74)	1.27 (0.55 - 2.95)	0.68 (0.27 - 1.69)	1.34 (0.57 - 3.15)
Partner First Partner (ref)								
2nd Partner	0.54** (0.35 - 0.83)	0.56* (0.35 - 0.88)	0.47*** (0.34 - 0.65)	0.38*** (0.28 - 0.51)	1.47** (1.16 - 1.86)	2.46*** (2.10 - 2.89)	1.55*** (1.23 - 1.95)	2.71*** (2.32 - 3.18)
Constant	3.56 (0.16 - 80.51)	1.21 (0.12 - 12.83)	12.99* (1.06 - 159.27)	2.70 (0.50 - 14.62)	0.01*** (0.00 - 0.08)	0.00*** (0.00 - 0.02)	0.01*** (0.00 - 0.10)	0.01*** (0.00 - 0.03)
Observations	1,586	2,028	1,586	2,022	1,586	2,022	1,470	1,888
Number of id	793	1,014	793	1,011	793	1,011	780	995

Figures 2-7: Transitional Probabilities by Method

Figure 2: MALES: ANY METHOD USE

| Any Method Use at 1st Sex with 1st partner 96.7% | → 79.3% (no switchpart1) → 11.2% (switchpart1) → 4.9% (no switchpart1) 1.4% (switchpart1) | Any Method Use at 1st Sex with 2nd partner 92.9% |

| No Use of Any Method at 1st Sex with 1st partner 3.3% | 0.7% (no switchpart1) 1.7% (switchpart1) → 0.4% (no switchpart1) → 0.4% (switchpart1) | No Use of Any Method at 1st Sex with 2nd partner 7.1% |

Figure 3: FEMALES: ANY METHOD USE

| Any Method Use at 1st Sex with 1st partner 97.0% | → 82.9% (no switchpart1) → 8.6% (switchpart1) → 4.1% (no switchpart1) 1.3% (switchpart1) | Any Method Use at 1st Sex with 2nd partner 93.5% |

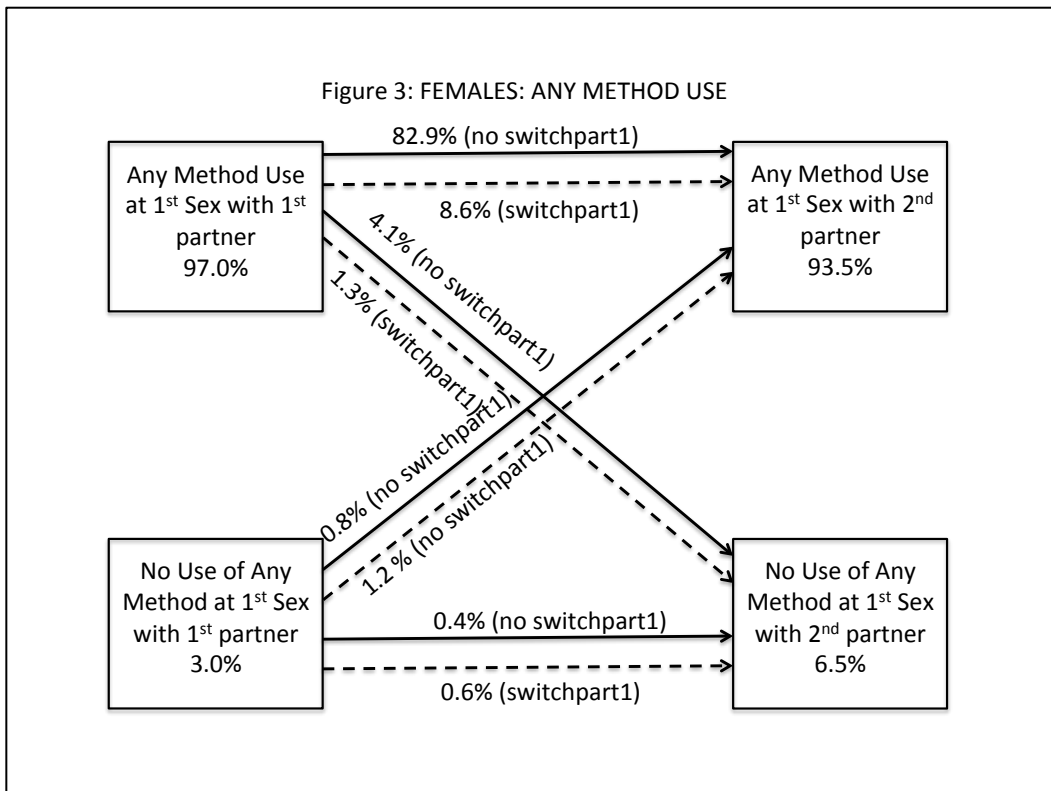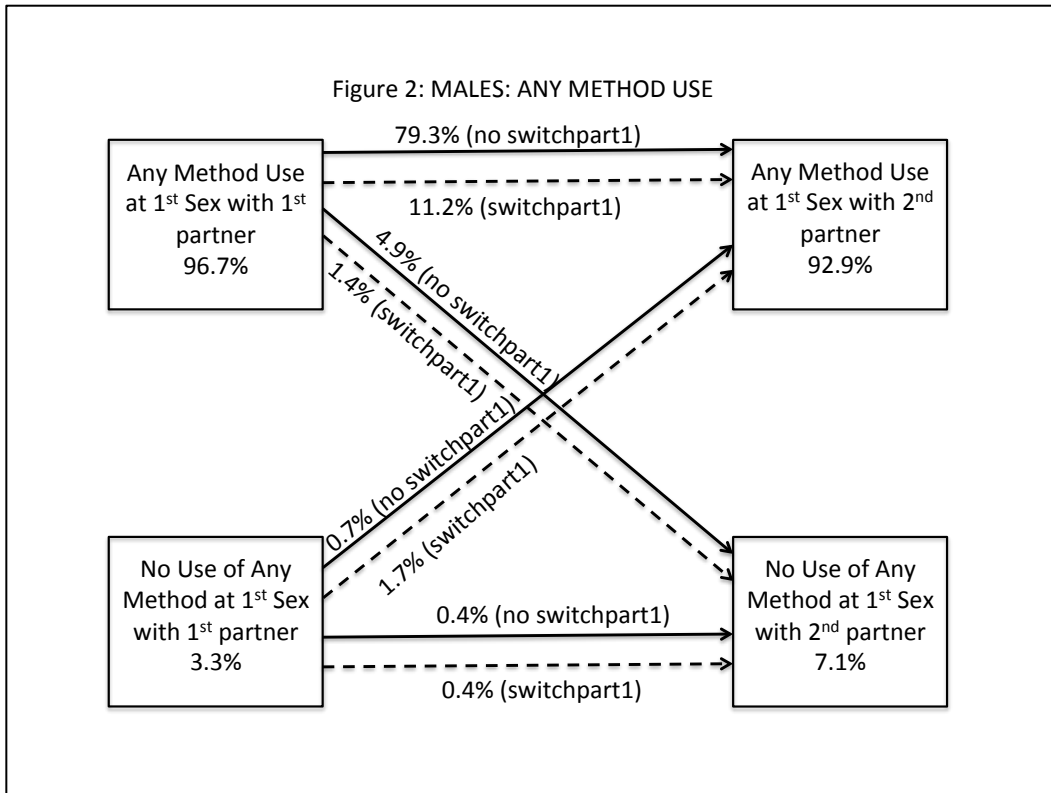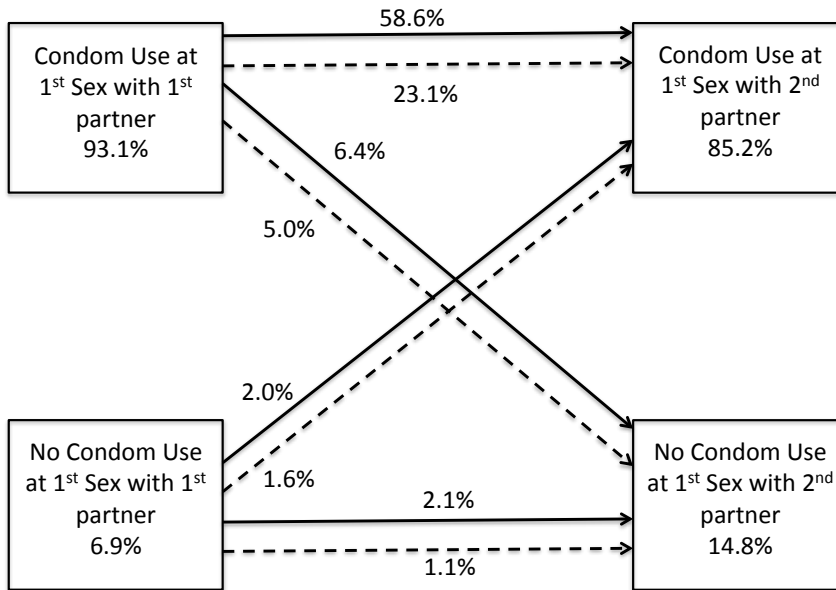| No Use of Any Method at 1st Sex with 1st partner 3.0% | 0.8% (no switchpart1) 1.2 % (no switchpart1) → 0.4% (no switchpart1) → 0.6% (switchpart1) | No Use of Any Method at 1st Sex with 2nd partner 6.5% |

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Figure 4: MALES: CONDOM USE

Figure 5: FEMALES: CONDOM USE
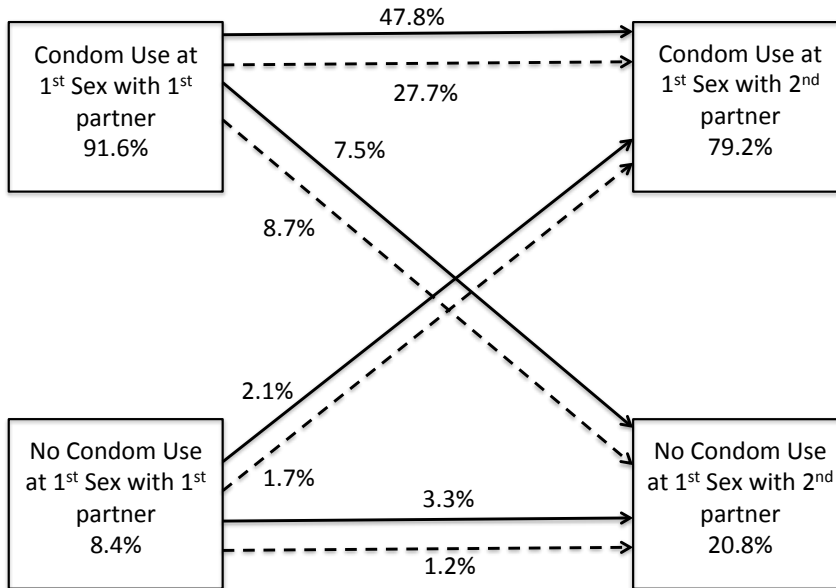
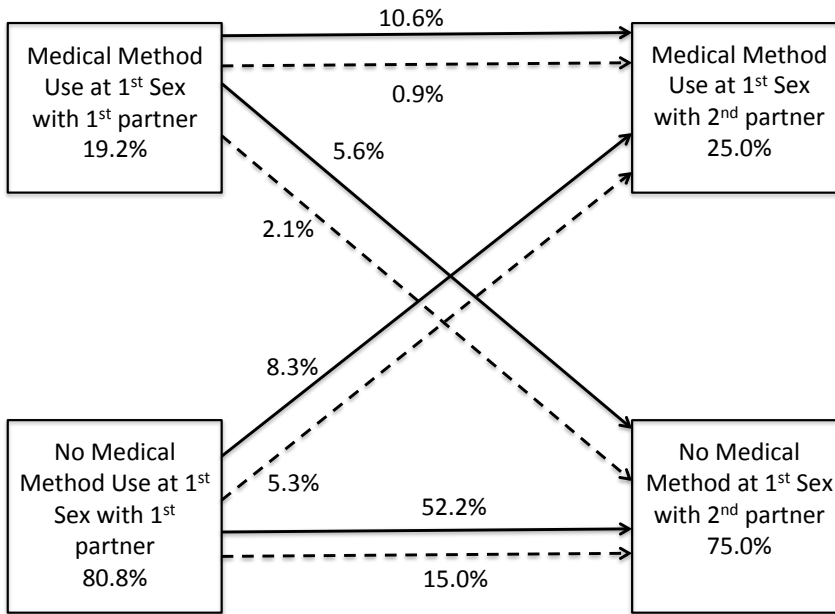**Figure 6: MALES: MEDICAL METHOD USE**

Medical Method Use at 1st Sex with 1st partner 19.2%

Medical Method Use at 1st Sex with 2nd partner 25.0%

No Medical Method Use at 1st Sex with 1st partner 80.8%

No Medical Method at 1st Sex with 2nd partner 75.0%

10.6%

0.9%

5.6%

2.1%

8.3%

5.3%

52.2%

15.0%

Figure 7: FEMALES: MEDICAL METHOD USE

Medical Method Use at 1st Sex with 1st partner 39.9%

Medical Method Use at 1st Sex with 2nd partner 58.2%

No Medical Method Use at 1st Sex with 1st partner 60.1%

No Medical Method Use at 1st Sex with 2nd partner 41.8%

33.1%

1.8%
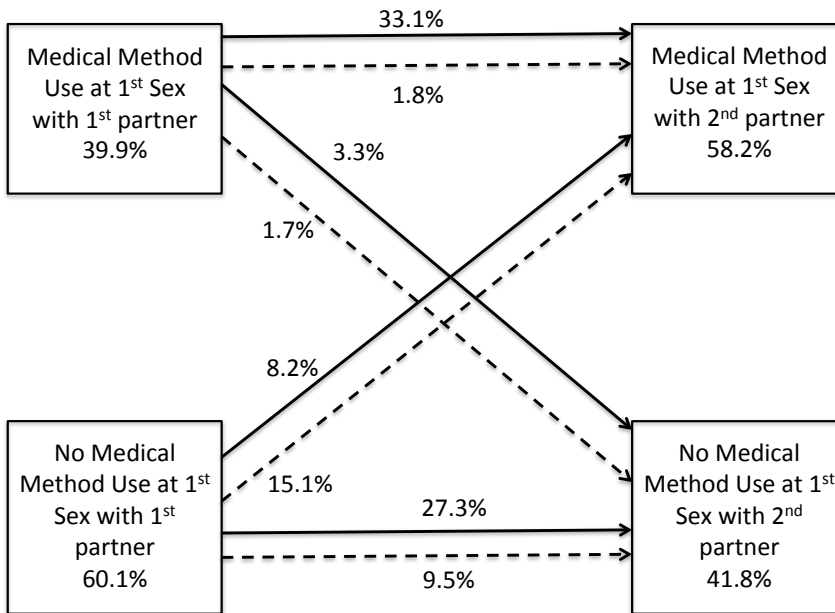
3.3%

1.7%

8.2%

15.1%

27.3%

9.5%

Table 3: Predictive Nature of Use at 1st Sex on Use at 1st Sex with 2nd Partner

	Any Method Use		Condom Use		Medical Method Use		Medical vs. Condom Use	
	Male	Female	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio
Use at 1st Intercourse	8.13***	4.15**	7.27***	3.57***	7.09***	10.83***	5.11***	10.86***
	(3.22 - 20.52)	(1.56 - 11.03)	(3.74 - 14.13)	(2.07 - 6.18)	(4.41 - 11.38)	(7.26 - 16.17)	(3.31 - 7.89)	(7.61 - 15.51)
Constant	4.74	2.27	3.37	0.37	0.03**	0.13	0.03**	0.02***
	(0.26 - 86.47)	(0.12 - 43.24)	(0.27 - 42.34)	(0.04 - 3.40)	(0.00 - 0.29)	(0.01 - 1.34)	(0.00 - 0.31)	(0.00 - 0.18)
Observations	793	1,011	792	1,009	793	1,011	744	945

Table 4: Predictive Nature of Switching from Use to Non-Use During 1st Partnership on Use at 1st Sex with 2nd Partner

	Any Method Use		Condom Use		Medical Method Use		Medical vs. Condom Use	
	Male	Female	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio
Switching During First Partnership	0.5	0.3**	0.4**	0.4***	0.1***	0.1***	0.2***	0.2***
	(0.21 - 1.16)	(0.12 - 0.61)	(0.22 - 0.75)	(0.26 - 0.62)	(0.02 - 0.34)	(0.03 - 0.22)	(0.11 - 0.40)	(0.13 - 0.35)
Constant	848.8***	17.4	43.9*	1.4	9.3	0.3	0.1	0.4
	(16.98 - 42,425.31)	(0.63 - 478.05)	(2.32 - 830.64)	(0.13 - 14.4)	(0.02 - 4,833.76)	(0.00 - 41.41)	(0.00 - 3.08)	(0.01 - 11.53)
Observations	669	854	643	805	134	347	266	553