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Religiosity, Anticipated Guilt, and Contraceptive Workarounds: New Evidence from a Longitudinal Panel of Young Adult Women

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Abstract
In this study, we test the pathways by which religiosity affects young women's sexual and contraceptive behaviors during the transition to adulthood using a cognitive-social framework. We begin by assessing familial and friend environments, then attitudes, and finally anticipated guilt after sex. We fit a series of logistic regressions with random effects using a novel sample of women aged 18 to 22 who were interviewed weekly over a 2.5 year period. Our results indicate that highly religious women have sex and use hormonal contraception less often than their less religious counterparts, but when having sex and *not* using a hormonal method, are more likely to use condoms than less religious women. The effects of religiosity operate partially through family, friends, and attitudes, but the strongest mediator of religiosity on all outcomes is the anticipation of feeling guilty.

Keywords: *Religiosity, Sexuality, Contraception, Transition to Adulthood*

Introduction

Sociologists have long acknowledged the role of social environments in shaping young people's attitudes, beliefs and behaviors. More recently, social scientists have begun to investigate how social environments shape cognitive processes, and in turn, major life decisions. In this paper, we take a cognitive-social approach (Bachrach and Morgan 2013), to understanding how religious context shapes key decisions about sex and contraceptive use during the transition to adulthood. We focus on religiosity as a key backdrop for many social interactions early in life, and thus for the development of influential religious schemas.

The United States' religious landscape is dominated by Christianity (Pew Research Center 2015). Across different Christian denominations, sex and fertility are given much attention. Though there is variation across denominations and individual churches or leaders, there are strong directives against sex and the use of contraception outside of marriage in all Christian faith variants. These directives against contraception relate to the promotion of sex only within marriage and for the purpose of sex to be procreative. A young woman following these directives faithfully would not have sex and therefore would have no need for contraceptives. If she did have sex and did not use contraception then she would risk a premarital pregnancy which would reveal her premarital sexual activity to her social network.

Many studies have been have devoted to identifying the influence of religion on behavior, especially reproductive behavior. These studies indicate that religions' influence flows less through theology and more through differential access to contraceptive types (Jones and Westoff, 1979); attitudes about sex and contraception (Lefkowitz et al. 2004; Goldscheider and Mosher 1991); selection into certain social groups (Smith 2003); and risk avoidance (Miller and Gur 2002). In other words, the relationship between Christian religiosity and fertility related behaviors is not direct, but rather mediated by multiple reinforcing social elements.

Most studies find that religiosity is a protective factor for sexual and contraceptive behavior – delaying sexual debut (Bearman and Brückner 2015; Rostosky et al. 2004) and reducing the likelihood of drinking,

substance use and having many sexual partners (Cooksey, Rindfuss, and Guilkey 1996; Gold et al. 2010; Miller and Hoffmann 1995; Regnerus 2007; Thornton and Camburn 1987, 1989). These findings suggest that religious young people engage in a range of behaviors that put them at risk of a premarital pregnancy less often, but importantly, they do not find that religious youth *never* engage in these behaviors. Complicating matters further, some scholars find no significant association between religiosity and contraceptive behavior (Gold et al. 2010), others find a positive association between religiosity and planned use of birth control (Miller and Gur 2002) or a positive association with condom use (Goldscheider and Mosher 1991).

We argue that inconsistent findings on the relationship between (Christian) religiosity and fertility related behaviors can be reconciled with a careful cognitive social approach that accounts for the layered process by which individuals make decisions (Kahneman 2011). Our strategy offers two distinct benefits. First, the cognitive social model recognizes that women interpret their social environment and experiences therein to develop complex schema. These schema do not simply consist of attitudes, but may further invoke emotional responses to different experiences or the anticipation of them. Emotional responses, and anticipated, negative emotions such as guilt in particular (Bandura 2009; Baumeister et al. 2007; Van Boven and Ashworth 2007), may explain differences across highly religious and less religious women. Second, our approach considers how religiosity affects young women's reproductive decisions *in sequence* (e.g., conditional on having sex, what is the relationship between religiosity and hormonal contraception? Conditional on having sex and *not* using hormonal contraception, what is the relationship between religiosity and condom use?)

Background

In this section we discuss how the social structure and cognitive processes work to develop schemas that lead to the formation and content of attitudes and emotions, ultimately affecting decision making. Schemas are frameworks for interpreting the world(s) individuals inhabit and guide decision making (Bartkowski et al. 2012). We pay particular attention to the religious social context and schemas which may yield certain attitudes and emotions and should be particularly relevant to decision making in the reproductive

realm. Religious schemas may dictate everyday interactions and mold perceptions about what is appropriate behavior in particular situations (Bartkowski et al. 2012). Therefore, individuals with religious schemas may interpret situations differently than those without such schemas.

We use the concept of a schema to describe the framework in which people are making decisions and to understand how attitudes and emotions can be relevant for decision making. Schemas are helpful because they are developed through the social structure and cognitively, which allows us to test these three mechanisms: social environment, attitudes, and emotions to see which may be most powerfully mediating the relationship between religiosity and our reproductive outcomes.

Social and cognitive development of schemas

Cognitive processes matter for the development of schemas. There are two types of interdependent, thinking processes; fast (or automatic) and slow (or deliberate) (Bachrach and Morgan 2013; Kahneman 2011). Using these processes a mental representation of the world is developed (schemas) which are steeped in feeling and sensation and taken together can be considered an individual's identity (Bachrach and Morgan 2013). The brain automatically sorts through stimuli from the social environment and prepares the deliberative process to tease out meaning and relevance from the automatic process.

The social structure, according to Sewell (1992), are the set of rules and resources of a social system which can range from whole societies to small neighborhoods. It also dictates the meanings we give to the elements of social structure. These meanings, or schemas, integrate experiences (particular to the individual) and more widely held learned meanings (for example, red means stop on a traffic light). Social structure elements can be material or abstract (Sewell 1992). The particular meaning given to these elements will depend on the specific social environment; the social environment will dictate the norms, opportunities available and the constraints imposed on actors or a situation (Bachrach and Morgan 2013). As a person develops their mental representations of the world around them, that person becomes empowered because they understand the social expectations and can operate successfully and gain and leverage capital within their networks.

Social Environments

The structure of a social environment dictates the rules and resources of the social system. Within these confines, meaning can be made. One's social environment is a major source of knowledge attainment. It is also an arbiter of norms and consequences. That is, groups coalesce based on shared affinity or affiliation and dictates appropriate attitudes and behavior (McPherson, Smith-Lovin, and Cook 2001). The group also acts to enforce these norms by praising those who act appropriately and ostracizing those who do not. Witnessing the group's reaction gives information to the brain which will automatically sort "good" behavior with praise and "bad" behavior with punishment. Individuals will aim to meet group standards because they want to avoid punishment, prefer the approval of relevant others, and will modify behavior to meet that approval (Bongaarts and Watkins 1996).

Religious social environments may lead to development of particular schemas. Religion itself is fundamentally about giving divine meaning to objects and interactions; a host is the body of Christ, confessing to a priest can bring absolution from sins. In regards to reproduction, repeated religious directives about sex and contraception throughout the lifecourse and from multiple sources will trigger cognitive processes that will become automatic (Kahneman 2011); i.e. they will be taken as absolute, obvious, and be salient to identity formation. These schemas may define her attitudes and emotions, and decisions as she encounters new situations, if they prove salient for decisions in this realm. The meaning given will be reinforced by how and with whom one spends their time.

Social group involvement necessary diverts attention and time toward the group and away from other people or activities that do not conform to group standards. In addition religious social environment are structured such that deviating from the norms is unpleasant or unthinkable. Scholars find that religious social control can have a powerful effect on behavior (Benda and Corwyn 2000; Hardy and Raffaelli 2003; Thornton and Camburn 1989; Wilcox 2002). Ellison and Levin (1998) describe how religious social control provides consequences for deviance which involve not only threat of divine punishment but public harassment and

shaming leading to feelings of guilt and shame. Norm and practice adherence is a large part of religious involvement, as a way to signal to others that you are a member, and a good member. Social punishments that result from deviance are well known and often threatened. Knowledge of these consequences motivates behavior (Hardy and Raffaelli 2003).

Research related to sexual behavior and contraceptive use finds that religiosity is known to delay sexual initiation and may limit the frequency of sexual activity after debut (Haglund and Fehring 2010; Lefkowitz et al. 2004; Rostosky et al. 2004; Simons, Burt, and Peterson 2009). The delayed debut finding highlights what others have found qualitatively: that religiosity does not guarantee sexual abstinence; instead, religiosity is associated with less permissive attitudes, which only sometimes lead to abstinence (Thornton and Camburn 1987, 1989). Religiosity is also associated with a reduction in sexual partners and use of alcohol and drugs (Cooksey et al. 1996; Gold et al. 2010; Miller and Hoffmann 1995; Regnerus 2007; Thornton and Camburn 1987, 1989). While religious teens may attach certain meaning to premarital sex it does not prevent them from engaging in it. It may however, effect the ways in which they choose to contracept. The empirical record on the relationship between religiosity and contraceptive use is mixed. Some scholars find no significant association (Gold et al. 2010), others find a positive association between religiosity and planned use of birth control (Miller and Gur 2002) or a positive association with higher condom use (Goldscheider and Mosher 1991), yet, still, others find that religiosity negatively affects contraception use (Cooksey et al. 1996; Zaleski and Schiaffino 2000). The analysis and framework herein allow us to parse out what elements may be complicating the relationship between religiosity and reproductive outcomes and show that schemas developed evoke attitudinal and emotional reactions that are keys to reproductive decision making.

During the transition to adulthood there may be increasing instances of new or modification of schema development as one's social environment changes and expands. Late adolescence and the transition to adulthood can be characterized by a peak in "risk" behaviors, due to the combination of lack of or less parental oversight, interest in identity exploration, and the lack of major responsibilities (e.g. children, spouse,

or demanding jobs) (Arnett 2000). In addition, the salience of different social environments may change; family influence wanes and peer social influence waxes, becoming more salient for changing schemas and behavior (Perry 1999). Indeed, as marriage tends to occur later at a later age than in the previous generation, the friend environment is a source of influence and support longer than before, making their role more salient.

Attitudes

Schemas are overarching interpretive frameworks, in this way they inform an array of social attitudes through cognitive processes (Shah, Bartkowski, and Xu 2016). Scholars note that the relevance of schemas for action requires consonance between the social structure, schema, and attitude. Bachrach and Morgan (2013) state that structures become important for cognitive development of schemas when they are relevant to a specific context or situation; they influence the cues that evoke particular schemas in the brain. Meier (2003) find that attitudes matter when there is concordance between the subject of the attitude and the subject of the decision or action. Attitudes about reproduction can be strong predictors of behavior. Attitudes more so than religiosity (participation in church services and similar dimensions) or denomination predict sexual behavior (Meier 2003). She reasons that while religiosity will lower the probability of sex, the effect of religiosity will be mediated by attitudes about sex due to the concordance of sexual attitudes and sexual activity (compared to religiosity and sexual activity).

Due to the nature of the cognitive processes (thinking fast and thinking slow), overtime information that was at one time novel becomes automatic as it is repeated in one's social environment (Kahneman 2011; Bachrach and Morgan 2012). In this way, schemas become rote and innate (Schafer 2014). Therefore the articulation of attitudes that stem from these representations will be subtle and may even be subconscious (Guzzo et al. 2019); they will not require deliberate thought. In a specific social context information about contraception can be transmitted and overtime become second nature. Therefore when asked about attitudes on contraception, a young woman may automatically retrieve the attitude she relates to contraception from the salient schema. The retrieval of this attitude will be quick; the brain prefers using this less taxing process

(Kahneman 2011). Delving deeper into reasoning will require more deliberative cognition processes (Kahneman 2011; Schafer 2014; Haidt 2001). Particularly at this time in the lifecourse where family social environment is likely to discourage premarital sex and therefore the need of contraception or more explicitly describe young woman who have premarital sex negatively, and this environment is one in which she has been in the longest, her automatic attitudes may reflect a disapproval of premarital sex and birth control as morally wrong.

Attitudes about contraception that form from religious schemas should prevent the planning for sex and accessing and use of contraception, particularly non-coital (hormonal) contraception. For a young woman immersed in a religious social structure and who represents herself as a religious person or who organizes her worldview in religious schemas, being a contraceptive user would be unthinkable even abhorrent. The use of a non-coital method can require doctors' appointments, pharmacy visits, and daily administration. All of which would be distressing, and guilt provoking, to someone whose schemas and social environment were not supportive. On the other hand, condom use may be cognitively less taxing or emotionally distressing. Condoms, generally, may be considered under the purview of male control and decision making. This shift in control to men, compared to female control of non-coital methods, may provide cognitive relief to a young woman with religious schemas and opposition to procuring and using contraception herself.

Gender attitudes play an important role in sexual experiences (Lefkowitz et al. 2014). The sexual double standard that still dominants broad cultural schemas will bring harsher judgement down on women who engage in sexual activity (ibid). Extant research suggests that women, compared to men, report felling less self-efficacy for using condoms (Shearer et al. 2005), more sexual compliance (Impett and Peplau 2003), and more frequent sexual victimization (Peplau 2003). In regard to condom use, evidence suggests that young women who endorse the sexual double standard are less likely to assert themselves in sexual situations (Lefkowitz et al. 2014).

Religious young women are more likely than non-religious peers to hold these traditional gender attitudes (Miller and Gur 2002). Conservatism in beliefs is associated with risk against sexual responsibility; young women with high personal conservatism are more likely to experience forced sex and to allow males to control birth control use (ibid). In a social structure which prohibits sex and planning for it, these young women may be ill-equipped to negotiate and fail to develop coping skills. Similarly, personal conservatism is the only dimension of religiosity that does not protect against severe substance abuse (Miller, Davies, and Greenwald 2000). Placing sexual authority in a male partner may shift the sin to her partner and allow her to workaround her own religious schemas and attitudes such that using a condom becomes the better contraceptive option. Cognitively, if a condom is used a young women may avoid any dissonance because she is not the one in control and is actively sinning by using contraception. The premeditation of hormonal methods may be too much to bare. The quick, automatic decision to use a condom will be less emotionally troubling and cognitively problematic, and because of the timing of the decision (the moments before intercourse) she will have less time to worry about it.

Emotions

Emotions or "embodied thoughts" (Rosaldo 1984) are physiological or neurological responses to stimulus and the appraisal of the stimulus based on a person's status and circumstances, (Basu 2006). Thought of in this way, emotional responses to stimuli can be determined by one's socially and cognitively developed schemas. Socially they serve a function for self-regulation and self-maintenance within larger systems or cultures (Keltner and Haidt 1999). Cognitively they serve a function in which the emotional reaction can position or prioritize the related schema within a set that makes up a person's identity (Bachrach and Morgan 2014).

There is also a distinction between experienced versus anticipated emotions. Anticipated emotions have a longer duration (Baumeister et al. 2007), are typically more intense and evoke stronger reactions (Van Boven and Ashworth 2007), and are more likely to guide future decisions (Wang and McClung 2012).

Decisions made from strong emotions tend to be sub-optimal (Baumeister et al. 2007), but Wang and McClung (2012) claim that anticipating emotional outcomes can lead to individuals making better decisions in the future.

Using the definition of culture as "learned systems of meaning" which create "particular senses of reality" (D'Andrade 1984:116), religion can be considered a culture which can produce a sense of reality and set of schemas, from symbols, directives and functions, which create a social context - including tacit social roles - to guide behavior within it. Emotions are thought to have a role for individuals which help assume and display cultural identities (Keltner and Haidt 1999). Deviance from cultural expectations and norms elicits emotion, such as guilt or embarrassment (Goffman 1967) in the actor and outrage or disgust from the group (Rozin, Haidt, and McCauley 2008) both of which motivate proper behavior in future.

Guilt is an emotion that has been of particular interest to social scientists of religion. Guilt is distinct from shame or embarrassment as it tends to require behavior that violates common moral, ethical or religious norms (Wang and McClung 2012). Guilt, is a "moral emotion" (Haidt 2003) because it motivates the individual to change behavior in order to re-position themselves as maintaining group interests and norms (Hermann et al. 2015). Negative emotions are thought to more powerfully change behavior than positive ones (Bandura 2009). The unpleasantness of guilt motivates alignment to group goals and to restore strained relations, and achieves more social conformity (Hermann et al. 2015).

Within a religious social environment, where faithful observance of rules and standards are the core principles of group membership, emotions, particularly negative, anticipated emotions should motivate behavior. In the cognitive social framework, the schemas that come to represent the self may elicit visceral emotional reactions especially when thoughts or actions run counter to the attitudes and world view one has developed. Due to the attention most Christian denominations pay to reproductive behaviors, emotions in this context should be extremely salient to decisions related to sex and contraception.

Hypotheses

Using the cognitive – social approach, we conceptualize the influence of religious schemas, operationalized as religiosity, on behavior as working through first, familial and second, friend social environments to influence individual attitudes. Attitudes should in turn influence anticipated emotions. According to research, above all else these emotions should ultimately dictate action.

We propose 3 hypotheses: 1) religiosity will be negatively associated with sexual intercourse and non-coital contraceptive use; 2) when not using a non-coital method, religiosity will be positively associated with coital contraceptive use; and 3) the relationship between religiosity and sexual and contraceptive behavior will be explained by family and friend environments, individual attitudes toward sex and contraception, and an anticipated feeling of guilt after sex.

Data and Methods

Sample

We draw on a sample of 1,003 young adult women from the Relationship Dynamics and Social Life Study (RDSL) (Barber et al. 2016). To participate, women had to be ages 18 or 19 and residing in Genesee County, Michigan at baseline (though women who temporarily resided outside the county for work or school were still included). Participants were randomly selected from a database of driver's licenses and state identification cards, yielding a socioeconomically and racially diverse population-representative sample. Although our sample is geographically limited, demographically, Michigan's population is highly similar to that of the United States as a whole, including in terms of marriage and cohabitation rates, age at first birth, nonmarital and teen fertility, and completed family size (see Lesthaeghe and Neidert 2006 for more details). Likewise, in terms of high school and postsecondary school enrollment, age distribution, employment rates, marriage, and residential arrangements, the RDSL sample itself is consistent with national averages among women of the same age (Clark 2018). The one exception is with respect to race: the RDSL includes twice as

many African American women and half as many Hispanic women as found in nationally representative samples (Clark 2018).

The RDSL began with a 50-minute baseline interview that gathered information on respondents' attitudes and perceived norms, relationships, reproductive and sexual history, and socio-demographic background. At the end of the interview respondents were invited to partake in the journal portion of the study, which consisted of 5-minute weekly interviews or "journals" administered by phone or over the Internet for the following 2.5 years. Ninety-nine percent of respondents participated in these weekly journals, with 78% remaining in the study for at least 1.5 years and 63% participating for the full 2.5 years (Barber et al. 2016).[1] These journals collected information on pregnancy, pregnancy desire, relationship status and dynamics, sexual activity, and contraceptive use on a week-by-week basis. They also updated information on respondents' attitudes and perceived norms every twelve weeks. A randomized experiment implemented in conjunction with the RDSL indicated that repeatedly answering questions about relationships, sex, contraception, and attitudes had little bearing on women's reported behavior or outlook (Barber, Gatny, and Kusunoki 2012).

Given our emphasis on the complex relationship between religion, norms, attitudes, emotions, and premarital sex and contraceptive use, we restrict our sample to women who completed at least two journals and who identified as having a religious affiliation. Among these women, we limit our analyses to weeks when they were not married or pregnant. The resulting analytic sample consists of 40,871 person-weeks across 701 women.

Measures

Table 1 describes the sample and its characteristics. Time invariant characteristics are reported by respondent and time-varying characteristics are reported by weeks.

[1] However, attrition rates differed by race and baseline education: African American women and women who had not attended college respectively completed 11 and 12 fewer journals, on average, than did white respondents and respondents who had at least some college education.

Intercourse and Contraceptive Use. In each journal, respondents were asked about their relationship status, sexual activity, and contraceptive use in the past week. These questions followed a skip pattern such that respondents were asked about their relationship status and non-coital contraceptive use every week, but were only asked about intercourse if they reported being in any kind of relationship (including casual ones). They were only asked about the use of coital contraceptive methods if they reported having intercourse.

Sexual Intercourse, our first outcome of interest, is coded (1) in weeks when respondents reported having vaginal sex ("when a man inserts his penis into a woman's vagina") and (0) in weeks when they did not (including when they were not in a relationship). Respondents reported having intercourse in 29% of weeks

Non-coital contraceptive use, our second outcome, is based on weekly responses to a series of questions. First, women were asked if they had used or done anything "that can help people avoid becoming pregnant, even if you did not use it to keep from getting pregnant yourself." When respondents answered "yes" they were asked to respond yes or no to whether they used specific non-coital methods including birth control pills, patch, ring, shot, implant, or IUD. We code non-coital contraceptive use as (1) in weeks when women reported using at least one of these methods and (0) in weeks when they did not. Women in our sample reported using non-coital contraception in 33% of weeks.

In weeks when women reported having sex they were also asked about their use of coital contraceptive methods at intercourse. We only consider *condom use* in this analysis and only if the respondent is not also using a non-coital method. We code *condom use* as (1) when respondents reported using condoms (male) and (0) when they did not.

Religiosity and Religion. We are able to make use of a set of detailed variable to create a religiosity scale which encompasses many dimensions of religiosity, whereas other studies typically rely on one or two dimensions of religiosity. Our main predictor of interest is *religiosity*, which is based on responses to six questions encompassing beliefs, actions, and priorities: "How often do you usually attend services?"; "How often do you pray alone, if ever?"; "How important is your religious faith to you?"; "Please tell me which

statement comes closest to expressing what you believe about God: I don't believe in God, I don't know where there is a God and I don't believe there is any way to find out, I don't believe in a personal God, but I do believe in a Higher Power of some kind, and I believe in God."; "Please tell me if you strongly agree, agree, disagree or strongly disagree with this statement: You employ your religious or spiritual beliefs as a basis for how you act and live on a daily basis."; "The Bible is God's word and everything happened or will happen pretty much as it says." Responses had high inter-reliability, with a Cronbach's alpha of .86. However, responses had different ranges of possible values, with some ranging between (1) and (4), others between (1) and (5), and still others between (1) and (6). Given this variability, we operationalize *religiosity* as the mean across responses to all six questions. A sensitivity test operationalizing *religiosity* as an additive scale leads to the same conclusions in terms of direction, magnitude, and significance (available upon request). To account for variation across religious teachings and beliefs, we also include a categorical indicator of *religious affiliation*: Christian, Protestant, Catholic, or other.

Family Environment. Given that parents are often conduits of religious values, we examine the role of respondents' family environment. We use respondent reported *parents' approval of sex* to capture the sexual attitudes of the family environment; the variable ranges from (0) to (5), with a higher number representing more (perceived) approval by respondents' parents.

Friend Environment. Like parents, friends are another important channel by which values are reinforced. During the transition to adulthood, friends may be a source of opposing beliefs and ideas from families and may be a more salient source of influence at this time. We therefore also examine the role of perceived norms and attitudes among respondents' friends. This consists of two variables: *friends' approval of sex* and *many or all of friends are having sex*. The former ranges from (0) to (5), with 5 representing the most positive reaction by respondent's friends. The latter; is a recode of the survey question, "How many of your friends have had sexual intercourse? Would you say none, a few, some, many, or almost all of them?" We have recoded the measure such that the value is (1) if many or almost all friends are having sex and a (0) otherwise.

Attitudes Toward Sex and Contraception. Considering that religious schemas, family, and friends may influence young women's behavior through their attitudes, we additionally explore respondents' outlook toward sex and contraception. *Disapproves of premarital sex* ranges from (1) to (5) where 5 is defined as strong agreement with the statement "Young people should not have sex before marriage." *Anticipates feeling guilty after sex* is based on respondents' agreement with the statement "If you had sexual intercourse now, you would feel guilty." The values range from (1) strongly disagree to (5) strongly agree. For analysis the variable's values were collapsed so that all levels of disagreement (1) and agreement (3) were grouped together, respectively with neither (2) in between.

In addition to religious schemas on the acceptability of contraception, young women are immersed in other social environments which have different messaging about contraception. We aim to include a range of those with the contraceptive attitude variables. Contraceptive attitudes were measured by asking respondents how much they agreed or disagreed with the seven statements: *condom is a sign of mistrust:* "If a woman asks her partner to use a condom, he will think that she doesn't trust him"; *Birth control is morally wrong:* "Using birth control is morally wrong"; *Birth control makes you sick:* "Using birth control is likely to make a woman feel sick"; *Birth control interferes with sexual enjoyment:* "Using birth control interferes with sexual enjoyment"; *Birth control is a hassle:* "In general, birth control is too much of a hassle to use"; *Birth control is expensive:* "In general, birth control is too expensive to buy." and *Birth control takes too much planning:* "It takes too much planning ahead of time to have birth control on hand when you're going to have sex."[2] Responses range from (1) to (5) with higher values indicating stronger agreement.

Controls. In all models we control for demographic characteristics known to be associated with sexual behavior and contraceptive use (Barber, Yarger, and Gatny 2015; England et al. 2016; Kusunoki and Upchurch

[2] The RDSL also asked women whether they agreed/disagreed with the statement: "If a girl uses birth control, she is looking to have sex." Given that it is unclear whether agreement would represent a positive or negative attitude toward contraception, we do not include this measure in our models.

2011; Manlove et al. 2008). These include *relationship status* (engaged, special, and casual/none)[3] and *age* (ranging from 18.1 to 22.8), both of which were updated weekly; *enrolled in college*, which was updated every 12 weeks; and *Black* (African American or white/other)[4] and childhood socioeconomic status, which were collected once at baseline. Childhood socioeconomic status is captured with three indicators: *public assistance during childhood* (0/1), *mother's education* (less than high school, high school, or college), and *mother was teen mom* (0/1).

[Table 1]

Methods

We analyze the relationship between religiosity and three, sequential outcomes: sexual intercourse, non-coital (hormonal) contraceptive use (when having sex), and condom use (when having sex and not using non-coital contraception). Because most religions discourage premarital sex and because contraception is primarily used to prevent pregnancy *if having sex*, we begin by estimating sexual intercourse in a given week. Then, in our second set of models, we estimate non-coital contraceptive use, controlling for whether respondents had sex the week prior. Finally, in our third set of models, we estimate condom use specifically in weeks when respondents reported having intercourse and did not use a non-coital method.

For each outcome, we begin by examining the effect of religiosity net of religious affiliation and control variables. In a second model we additionally adjust for respondents' family and friend environments. Then, in a third and fourth model, we introduce mediators related to respondents' own attitudes about sex and contraception, respectively. In these model, we continue to adjust for family and friend environments because we conceptualize both family and friend environments as determinants of respondent's attitudes. In a final model we add anticipated guilt and include all potential mediators, allowing us to observe which factors remain strong predictors of behavior net of all others.

[3] Casual and none are combined into one category because women were only asked about their sexual activity if they reported being in a relationship of any kind.
[4] Ninety-seven percent of respondents identified as African American or white.

Outcomes are binary and the structure of our data is such that weeks are nested within women. All models are estimated with logistic regression with random effects. Coefficients on time-invariant variables therefore depict between-woman differences while coefficients on time-variant variables convey a combination of between-woman and within-woman differences over time. For the ease of interpretation, all results are reported as odd ratios in the tables. Values greater than 1 indicate a positive relationship, while values less than 1 indicate a negative relationship.

Results

Sexual Activity

As a first step we estimate the effect of religiosity, net of religious affiliation and demographic controls, on the odds of having intercourse in a given week. We find that *religiosity* is a strong negative predictor of sexual activity. Specifically, for each 1-unit increase in religiosity, a woman's odds of *sexual intercourse* decrease by 50% (Table 2, Model 1).

As anticipated, this effect becomes attenuated with the inclusion of hypothesized mediators. Specifically, when controlling for characteristics of young women's family environment, in Model 2, the estimated effect of *religiosity* is reduced to 42%. This mediation is driven by differences in social environment's norms about sex: *parents' approval of sex* is associated with 9% higher odds of *sexual intercourse*; *friends' approval of sex* is associated with 19% higher odds of *sexual intercourse*; and *many or all friends are sexually active* is associated with 81% higher odds of *sexual intercourse*, than having few or no sexually active friends (Table 2, Model 2).

In Model 3, we add variables which represent the respondent's personal attitudes about premarital sex. Increasing agreement with *disapproves of premarital sex* is associated with a 10% reduction in odds of *sexual intercourse* and further reduces the effect of *religiosity* slightly (from OR of 0.58 to 0.62). In Model 4, the contraceptive attitude variables are added, their inclusion has no effect on *religiosity*. Of the 7 contraceptive attitude variables only *birth control makes you sick* and *birth control takes too much planning* are significant at

conventional levels. Each has a positive effect, increasing the odds of *sex this week* by 5% and 9%, respectively. The addition of these variables does not mediate any of the effects of family or friend environment.

Model 5 brings all mediators together in one comprehensive model. Here, the last mediator, *anticipates feeling guilty after sex*, is added. Most notably, *religiosity* fails to reach statistical significance and is greatly attenuated, with an estimated negative effect of only 8% (OR 0.92) net of all other factors. *Anticipates feeling guilty after sex* is thus the strongest mediator of religiosity. It has a highly significant and negative effect, reducing the odds of *sexual intercourse* by 60% (OR 0.40). Its inclusion also weakens, slightly, the effects of the social environment variables and *disapproves of premarital sex*.

Thus our analysis of the relationship between religiosity and intercourse yields three clear findings. First and consistent with extant studies, the effects of religiosity are partially explained by young women's social environments. Second, women's own attitudes (mostly about sex and to a lesser extent about contraception) partially explain the effects of religiosity, even net of the effects of social environments. Third, the mediator with the strongest explanatory power is anticipated guilt.

[Table 2]

Non-Coital Contraceptive Use

Using the same model progression as the *sexual intercourse* outcome, we next turn our attention to non-coital-specific contraceptive methods. We begin by estimating the effect of *religiosity* while controlling for demographic controls, *religious affiliation*, and whether the respondent had sex the week prior. Controlling for sex the week prior establishes habitual contraceptive need which is associated with interest in non-coital over coital specific methods (see Table 3).

Similar to the first outcome, we find that *religiosity* is a strong and significant predictor of *non-coital contraceptive use*. As seen in Table 3 Model 6, increasing *religiosity* by 1 unit reduces the odds of *non-coital contraceptive use* by 59%. As anticipated, this effect diminishes as mediators are added. *Parent's approval of sex* increases the odds of *non-coital contraceptive use* by 5%. As *friends' approval of sex* increases, women's odds of *non-*

coital contraceptive use increases by 10% and if *many or all friends are having sex*, compared too few or none, the increase in odds is 57%. The inclusion of these social environment variables mediates *religiosity* slightly, such that the odds ratio is 0.46 (from 0.41). Similar to the results of the *sexual intercourse* models, we attribute the majority of the attenuation of *religiosity* to friend environment[5].

In Model 8, we add the respondents' views on premarital sex and contraception. *Disapproves of premarital sex* is associated with a reduction in the odds of *non-coital contraceptive use* by 11% (OR 0.89) and it mediates the effect of *religiosity* to 51% (OR 0.49). In Model 9, the contraceptive attitude variables are added. For this outcome, these variables have an additional mediating effect on *religiosity*, reducing *religiosity's* effect by a further 2%. Four of the seven variables are significant: *birth control makes you sick*, *birth control interferes with sexual enjoyment*, *birth control is a hassle* and *birth control is expensive*. They each have negative effects on the odds of the outcome.

Model 10, brings in *anticipates feeling guilty after sex*, the most powerful mediator of *religiosity*. Its inclusion in the model reduces the strength of the effect of *religiosity* such that is no longer significant and reduces the associated odds by two-thirds, from negative 48% in Model 9 (OR 0.52) to negative 28% in Model 10 (OR 0.72). Increasing *anticipates feeling guilty after sex* by one unit is associated with a 50% reduction in the odds *non-coital contraceptive use*.

In sum, our analysis of religiosity and non-coital contraceptive use, uncovers three findings. First, religiosity's effect is only partially explained by a young woman's friend and family environment. We see a similar finding in the religiosity and intercourse models, but here the mediation effect of the social environment variables is smaller. Second, a young woman's own views on sex and contraception are similarly strong mediators of the effect of religiosity. Third, the most powerful mediator is again, anticipating feeling guilty after sex.

[5] Earlier versions of analysis in which family and friend social environment variables were added separately, the inclusion of friend environment more strongly mediated *religiosity* than family environment results available upon request.

[Table 3]

Condom Use

The final set of models examines *religiosity's* effect on *condom use* in weeks when women have sex but are *not* using a non-coital method (Table 4). In Model 11, we find that for each one unit increase in *religiosity* the odds of *condom use* increase by 53%, net of demographic controls and religious affiliation.

In Model 12 we add our indicators of women's family and friend environment. No indicator exhibits an effect that reaches significance at conventional levels. However, their inclusion does modestly reduce the effect of religiosity to 51%. We next focus on respondent's own attitudes toward sex, net of social environment, demographic controls and religious affiliation, in Model 13. *Disapproves of premarital sex* is associated with a 14% increase in the odds of *condom use* and mediates the effect of *religiosity* to odd of 1.40, lower than the effect in Models 11 and 12 and it now is not significant.

In Model 14, the seven contraceptive attitude variables have a notable pattern. Again we see that, *birth control makes you sick*, *birth control interferes with sexual enjoyment*, *birth control is a hassle* and *birth control is expensive* are significant. However, for this outcome (compared to the non-coital outcome) the coefficients have different directional predictions of contraceptive behavior. *Birth control is expensive* and *birth control makes you sick* are each associated with a 29% increase in the odds of *condom use*. Whereas *birth control interferes with enjoyment* and *birth control is a hassle* reduce the odds of *condom use* by 24% and 12%, respectively.

Model 15 includes all the mediators and anticipated emotions. In this model, *religiosity*, while not significant, is further reduced to a magnitude of 20% increase in odds. We attribute this to *anticipates feeling guilty after sex*, which increases the odds of condom use by 48%.

Condom use is positively affected by religiosity, supporting the hypotheses of this paper. Religiosity in these models is not mediated by family or friend social environments. However it is internally motivated, via attitudes and emotions. Again we see that guilt is the strongest mediator of religiosity.

[Table 4]

Conclusion

Individuals make meaning out of the information and cues they receive from their social environment. As the brain processes these cues two processes occur: one is fast, automatic thinking which learns and stores that piece of information and gives quick answers, the second is slow and deliberate, it sorts and reasons laboriously creating meaning and developing our sense of self. The meaning given to one's world yields a particular set of attitudes which are unique to a social environment and to the particular set of lived experiences. At decision making points, brains sort through the relevant schemas in the set of schemas and elicits emotional responses which lead to a decision. In the case of religious young women, during the transition to adulthood, we posit that the religious schemas developed over their lives thus far evoke attitudes and emotions that are incompatible for planning for sex. When they ultimately do have sex, the attitudes and emotions relevant lead them to rely on condoms. On its face, the use of condoms may seem puzzling; if contraception in general is prohibited than why would condoms be preferred? We suggest, based on this framework and existing research, that condoms are relied upon for these women because it allows for a workaround on contraceptive prohibition because it may be under a male's control, it is not premeditated, and is more easily hidden from relevant adults or peers.

Taken together, the results of the analyses support our hypotheses; religiosity is negatively associated with sexual intercourse and the use of non-coital contraceptives, religiosity is positively associated with exclusive coital contraceptive use (operationalized as condom use), and the relationship between religiosity and sexual and contraceptive behavior is mediated by social environment and individual attitudes and emotions. For all outcomes, anticipated guilt is the strongest mediator. When included in a model, regardless of outcome, it reduces or entirely removes the significance of the effect of religiosity. Which is not to say that religiosity is not important here but rather that religiosity may be causing the guilty feeling. The strength of guilt in our results support the cognitive-social framework we outlined, and shows that anticipation of guilt,

more so than social environment or attitudes, influences the decision to have sex and what type of contraception to use if sex does occur.

Family and friend social environments mediate the effect of religiosity on sexual intercourse and non-coital contraceptive use but not for condom use. We surmise that these elements of one's social environment influence only pro-active decision making in regard to contraception since getting hormonal birth control may require the support of parents or friends in terms of financing it, time spent going to the doctor/clinic, or advice on methods to consider. A supportive environment such as that will therefore increase the likelihood of using a non-coital method.

We suggest that guilt may be the emotional embodiment of religious schemas which will motivate decisions. Feeling guilty at the thought of sex suggests a strong attachment to schemas which yield attitudes that to be a faithful (Christian) woman one must not premeditate sex or contraceptive use because it is sinful. Guilt may also be the embodiment of social control: the social dimension to the schema that is evoking the emotional response. More research is required to tease out if guilt is motivated internally (cognitively) or externally (socially).

Guilt as a motivator for lack of proactive contraceptive planning can be dangerous. While condoms are an effective method of birth control and have the added benefit of STI protection, they are not as effective as hormonal or other non-coital methods. The implications of this pattern of behavior suggests that religious women and those who anticipate feeling guilty after sex are more susceptible to the risk of pregnancy than women who are less religious or do not anticipate feeling guilty because they are more likely to use more effective contraception. This is supported by research that find that young women generally, and especially religious young women may not have the negotiation skills or sexual responsibility to procure or insist on birth control (Miller and Gur 2002), further increasing their risk of pre-marital pregnancy. The workaround that allows them to avoid cognitive distress by not being in control of and actively participating in habitual

contraceptive use, is the same workaround that then exposes them to the risk of pregnancy which would subject them to potential group ostracism.

The results of this study are striking, though the come with some limitations. In any longitudinal study there are two main concerns and sources of bias: attrition and panel conditioning. To test for an effect of attrition bias, we re-estimate our models with a sample limited to only the first year of the survey and find similar results to our main analysis (results available on request). Therefore our study is not sensitive to issues of attrition. It was found in Barber, Gatny and Kusunoki (2012) there is no demonstrated panel conditioning in the RDSL survey. Additionally, the third outcome (use of condoms), creates a more limited sample with only 10,216 weeks across 546 women. This may affect generalizability but we are still confident in our results and believe them to be robust.

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Table 1. Descriptive Statistics of the Sample

	Baseline - Time Invariant Characteristics	Mean	Standard Deviation
Religion	Religiosity (1-5)	3.7	.82
	Religious affiliation		
	Other	.06	
	Christian	.46	
	Protestant	.25	
	Catholic	.22	
Demographic Controls	Relationship status		
	No relationship	.38	
	Engaged	.08	
	Special Relationship	.54	
	Mother was teen mom (0/1)	.34	
	Mother's completed education		
	<High school	.08	
	High school	.68	
	College	.24	
	Public assist. during childhood (0/1)	.35	
	Black (0/1)	.38	
	Enrolled in college (0/1)	.60	
Family Social Environment	Parent's approval of sex (1-5)	1.45	1.43
Friend Social Environment	Friend's approval of sex (1-5)	2.62	1.45
	Many or all friends are having sex (0/1)	.73	.44
Respondent's Attitudes	Disapproves of premarital sex (1-5)	3.35	1.20
	Anticipates feeling guilty after sex (1-3)	1.73	.96
	Contraceptive Attitudes		
	Condom sign of mistrust (0-4)	1.26	1.23
	BC is morally wrong (0-4)	.76	.71
	BC makes you sick (0-4)	1.66	1.07
	BC interferes with sexual enjoyment (0-4)	.88	.64
	BC is a hassle (0-4)	.81	.85
	BC is expensive (0-4)	1.11	.89
	BC takes too much planning (0-4)	.83	.66
	Journal and Time Varying Characteristics	**Mean**	**Standard Deviation**
Demographic Controls	Age (18-22)	20.26	.94
	Enrolled in College (0/1)	.76	
Dependent Variables	Had Sex that Week (0/1)	.29	
	Used Non-Coital Contraception that Week (0/1)	.33	
	Used (Only) Condom that Week (0/1)	.08	

Table 2. Random Effects Logistic Regression Estimating Sexual Intercourse

	Model 1			Model 2			Model 3			Model 4			Model 5		
	OR	SE		OR	SE		OR	SE		OR	SE		OR	SE	
Religion															
Religiosity	.50	(.06)	***	.58	(.07)	***	.62	(.07)	***	0.62	0.07	***	0.92	0.11	
Religious affiliation ref: other															
Christian	1.27	(.49)		1.13	(.41)		1.11	(.40)		1.11	(.40)		0.72	0.25	
Protestant	.88	(.36)		.85	(.32)		.84	(.31)		.85	(.32)		0.62	0.22	
Catholic	1.34	(.54)		1.24	(.46)		1.19	(.44)		1.20	(.45)		0.91	0.32	
Demographic Controls															
Relationship status															
Engaged	32.54	(2.95)	***	32.83	(2.97)	***	32.86	(2.98)	***	32.90	(2.99)	***	32.31	2.92	***
Special Relationship	28.38	(1.62)	***	28.27	(1.61)	***	28.29	(1.61)	***	28.28	(1.61)	***	27.95	1.59	***
Mother was teen mom	1.55	(.31)	*	1.43	(.27)		1.41	(.26)		1.39	(.26)		0.98	0.18	
Mother's education	.72	(.12)		.74	(.12)		.73	(.12)	*	.74	(.12)		0.73	0.11	*
Public assist. during childhood	1.15	(.23)		1.13	(.21)		1.12	(.21)		1.13	(.21)		1.23	0.21	
Black	1.11	(.25)		1.01	(.21)		1.03	(.21)		1.02	(.21)		0.79	0.16	
Enrolled in college	.89	(.05)		.86	(.05)	*	.86	(.05)	*	.86	(.05)	*	0.87	0.05	*
Age	1.14	(.03)	***	1.05	(.03)	*	1.04	(.03)		1.05	(.03)		1.05	0.03	*
Family Social Environment															
Parent's approval of sex				1.09	(.02)	***	1.09	(.02)	***	1.09	(.02)	***	1.08	0.02	***
Friend Social Environment															
Friend's approval of sex				1.19	(.03)	***	1.19	(.03)	***	1.18	(.03)	***	1.17	0.03	***
Many or all friends are having sex				1.81	(.12)	***	1.80	(.12)	***	1.80	(.12)	***	1.75	0.12	***
Respondent's Attitudes															
Disapproves of premarital sex							.90	(.02)	***	.90	(.02)	***	0.92	0.02	***
Contraceptive Attitudes															
Condom sign of mistrust										.98	(.02)		0.98	0.02	
BC is morally wrong										1.03	(.04)		1.03	0.04	
BC makes you sick										1.05	(.02)	*	1.05	0.02	*
BC interferes with sexual enjoyment										.96	(.03)		0.96	0.03	
BC is a hassle										1.0	(.03)		1	0.03	
BC is expensive										.98	(.03)		0.99	0.03	
BC takes too much planning										1.09	(.04)	*	1.09	0.04	*
Anticipated Emotions															
Anticipates feeling guilty after sex													0.40	0.04	***
Constant	.04	(.03)	***	.04	(.03)	***	.06	(.04)	***	.05	(.04)	***	0.08	0.06	***
Observations	41,805			41,805			41,805			41,805			41,805		
Respondents	725			725			725			725			725		

Table 3. Random Effects Logistic Regression Estimating Non-Coital Contraceptive Use

	Model 6			Model 7			Model 8			Model 9			Model 10		
	OR	SE		OR	SE		OR	SE		OR	SE		OR	SE	
Religion															
Religiosity	.41	(.07)	***	.46	(.08)	***	.49	(.09)	***	.52	(.09)	***	0.72	0.13	
Religious affiliation ref: other															
Christian	1.71	(.97)		1.59	(.89)		1.56	(.87)		1.40	(.77)		1.02	0.56	
Protestant	1.90	(1.13)		1.84	(1.08)		1.80	(1.06)		1.52	(.88)		1.21	0.7	
Catholic	2.56	(1.51)		2.39	(1.39)		2.29	(1.33)		1.97	(1.13)		1.62	0.92	
Demographic Controls															
Relationship status															
Engaged	1.85	(.17)	***	1.84	(.17)	***	1.85	(.17)	***	1.85	(.17)	***	1.83	0.17	***
Special Relationship	1.64	(.09)	***	1.61	(.09)	***	1.61	(.09)	***	1.62	(.09)	***	1.61	0.09	***
Mother was teen mom	1.46	(.43)		1.38	(.40)		1.36	(.39)		1.43	(.40)		1.11	0.32	
Mother's education	1.54	(.38)		1.56	(.39)		1.55	(.38)		1.46	(.35)		1.47	0.35	
Public assist. during childhood	.78	(.23)		.77	(.22)		.76	(.22)		.75	(.21)		0.79	0.22	
Black	1.32	(.43)		1.24	(.40)		1.26	(.40)		1.26	(.40)		1.03	0.32	
Enrolled in college	1.43	(.10)	***	1.43	(.10)	***	1.42	(.10)	***	1.43	(.10)	***	1.44	0.1	***
Age	1.01	(.03)		.95	(.03)	*	.93	(.03)	**	.92	(.03)	**	0.93	0.03	**
Had Sex Week Prior	1.83	(.09)	***	1.79	(.09)	***	1.77	(.09)	***	1.78	(.09)	***	1.77	0.09	***
Family Social Environment															
Parent's approval of sex				1.05	(.02)	*	1.05	(.02)	*	1.05	(.02)	*	1.04	0.02	
Friend Social Environment															
Friend's approval of sex				1.10	(.03)	***	1.09	(.03)	***	1.08	(.03)	***	1.08	0.03	**
Many or all friends are having sex				1.57	(.11)	***	1.55	(.11)	***	1.52	(.11)	***	1.5	0.11	***
Respondent's Attitudes															
Disapproves of premarital sex							.89	(.02)	***	.88	(.02)	***	0.89	0.02	***
Contraceptive Attitudes															
Condom sign of mistrust										.99	(.03)		0.99	0.03	
BC is morally wrong										.92	(.04)		0.92	0.04	
BC makes you sick										.84	(.02)	***	0.85	0.02	***
BC interferes with sexual enjoyment										.90	(.03)	**	0.9	0.03	**
BC is a hassle										.90	(.03)	**	0.9	0.03	**
BC is expensive										.87	(.03)	***	0.87	0.03	***
BC takes too much planning										1.02	(.04)		1.02	0.04	
Anticipated Emotions															
Anticipates feeling guilty after sex													0.5	0.07	***
Constant	.21	(.22)		.28	(.29)		.47	(.49)		1.13	(1.17)		1.6	1.64	
Observations	40,278			40,278			40,278			40,278			40,278		
Respondents	725			725			725			725			725		

Table 4. Random Effects Logistic Regression Estimating Condom Use for Sexually Active Weeks When Not Using Non-Coital Methods

	Model 11			Model 12			Model 13			Model 14			Model 15		
	OR	SE		OR	SE		OR	SE		OR	SE		OR	SE	
Religion															
Religiosity	1.53	(.30)	*	1.51	(.30)	*	1.40	(.28)		1.39	(.28)		1.20	(.25)	
Religious affiliation ref: other															
Christian	.53	(.30)		.54	(.31)		.55	(.32)		.55	(.32)		.65	(.38)	
Protestant	.34	(.21)		.34	(.21)		.35	(.21)		.36	(.22)		.42	(.25)	
Catholic	.68	(.41)		.69	(.41)		.70	(.42)		.77	(.46)		.84	(.50)	
Demographic Controls															
Relationship status															
Engaged	.46	(.09)	***	.46	(.09)	***	.45	(.09)	***	.49	(.10)	***	.50	(.10)	***
Special Relationship	.65	(.10)	**	.65	(.10)	**	.65	(.10)	**	.67	(.10)	**	.67	(.10)	**
Mother was teen mom	1.53	(.47)		1.56	(.47)		1.56	(.47)		1.43	(.44)		1.62	(.50)	
Mother's education	.75	(.20)		.74	(.19)		.76	(.20)		.83	(.22)		.87	(.23)	
Public assist. during childhood	.85	(.26)		.87	(.26)		.87	(.26)		.87	(.26)		.86	(.26)	
Black	2.39	(.83)	*	2.39	(.83)	*	2.29	(.79)	*	2.25	(.78)	*	2.41	(.84)	*
Enrolled in college	.88	(.11)		.89	(.11)		.89	(.11)		.91	(.11)		.90	(.11)	
Age	.97	(.05)		.99	(.05)		1.0	(.05)		1.02	(.06)		1.01	(.06)	
Family Environment															
Parent's approval of sex				.96	(.04)		.95	(.04)		.97	(.04)		.97	(.04)	
Friend Social Environment															
Friend's approval of sex				1.02	(.04)		1.03	(.04)		1.04	(.04)		1.04	(.04)	
Many or all friends are having sex				.77	(.12)		.78	(.12)		.79	(.12)		.81	(.12)	
Respondent's Attitudes															
Disapproves of premarital sex							1.14	(.05)	**	1.14	(.06)	**	1.13	(.06)	*
Contraceptive Attitudes															
Condom sign of mistrust										1.0	(.05)		1.0	(.05)	
BC is morally wrong										1.13	(.08)		1.13	(.08)	
BC makes you sick										1.29	(.06)	***	1.28	(.06)	***
BC interferes with sexual enjoyment										.76	(.05)	***	.76	(.05)	***
BC is a hassle										.88	(.05)	*	.88	(.05)	*
BC is expensive										1.29	(.07)	***	1.29	(.07)	***
BC takes too much planning										1.08	(.08)		1.08	(.08)	
Anticipated Emotions															
Anticipates feeling guilty after sex													1.48	(.25)	*
Constant	.55	(.77)		(.47)	0.66		.34	(.47)		.11	(.16)		.09	(.12)	
Observations	10,216			10,216			10,216			10,216			10,216		
Respondents	546			546			546			546			546		