How Religious Beliefs, Behaviors, and Identities Are Related to Early Pregnancy

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September 2012

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ABSTRACT

This is a proposed paper in which we will examine how multiple dimensions of religiosity relate to early pregnancy. We will use data from a weekly journal-based study to investigate how religious affiliation, belief in God, biblical literalism, religious service attendance, prayer, and religious importance at baseline relate to subsequent pregnancy for a sample of 1,003 young women. First, we will test for overall relationships between religious characteristics and the risk of pregnancy using event-history analysis. Second, we will explore whether attitudes toward sex, pregnancy, birth control, and children help explain any religious differentials in the risk of early pregnancy. Finally, we will examine the extent to which religious characteristics and associated ideologies are linked to early pregnancy through pregnancy-related behaviors such as sexual behavior, contraceptive use, and prior pregnancy. Our findings will provide the most comprehensive evidence to date of *how* religious characteristics independently and interdependently relate to the risk of early pregnancy.

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PAPER PROPOSAL

Although teenage childbearing has declined in the United States since the late 1950s (Ventura & Hamilton 2011), the U.S. teen birth rate remains one of the highest among industrialized countries (UNSD 2011). Furthermore, childbearing by teenagers continues to be a matter of public concern because the social consequences of these unplanned pregnancies and births, including abortion, reduced educational attainment, and later-life health struggles, permeate multiple aspects of social life and persist in the long term (Barber et al. 1999; Brown and Eisenberg 1995). Also, significant public costs are associated with teen childbearing, estimated at $10.9 billion annually (The National Campaign to Prevent Teen and Unplanned Pregnancy 2011).

When it comes to early pregnancy and its proximate determinants (sexual behavior and contraceptive use), one sociocultural factor thought to be protective at times and problematic at others is religion. Prior research suggests that religious affiliation, religious practice, and the importance of religion all relate to differences in the onset of sexual behavior, the number of sexual partners, the use of contraception to prevent early pregnancy, the likelihood of terminating a pregnancy, and the likelihood of having a premaritally conceived first birth (Adamczyk & Felson 2008; Meier 2003; Pearce 2011; Regnerus 2007). These existing studies face limitations in the measurement of religiosity and/or data on sexual behavior, contraceptive use, and pregnancy status, involving the temporal ordering of measurement being reversed and/or issues of recall bias or social desirability (e.g., not reporting pregnancies that were terminated). In this paper, we will capitalize on a unique data source that allows the estimation of models using several different measures of religious characteristics to predict the subsequent risk of early pregnancy (captured in the following 2.5 years through weekly diaries). In addition, we are able to use precise data on attitudes and pregnancy-related behaviors that may serve as mechanisms to explain religious differentials in the risk of early

pregnancy. This paper will make important contributions to understanding how different aspects of religion (affiliation, public involvement, private practice, personal importance, belief in God, and Biblical literalism) are related to early pregnancy for young women.

THEORETICAL FRAMEWORK

In linking religion to the risk of early pregnancy or the behaviors most proximate to it (sexual behavior and contraceptive use), studies often examine the separate relationships between multiple dimensions of religiosity and pregnancy, sex, or contraceptive use outcomes. Following this approach, our theoretical framework will discuss how religious affiliation, belief in God, Biblical literalism, religious service attendance, frequency of prayer, and the personal importance of religion might each protect from or contribute to one's risk of early pregnancy. In addition to considering unique contributions of each dimensions of religiosity, we draw on the theory of conjunctural action's notion of structure as a reinforcing mixture or schema (or ideological notions of which actions are possible and preferable) and materials (or the resources, actions, and interactions that reinforce and result from schema) to conceptualize how religion operates as a social structure (Johnson-Hanks et al. 2011). Religion offers schema and materials that are likely to shape and respond to pregnancy and the sexual behavior and contraceptive behavior that are so intimately linked. Our theoretical framework will lead to specific hypotheses for how various combinations of religious ideologies, practices, and salience will differentially protect from or contribute to one's risk of early pregnancy. For example association with a more conservative religious group, strong belief in God, and/or a belief in Biblical literalism is likely to be more strongly related to pregnancy risk for those young women who are more regularly involved in a religious congregation. In other words, when schema and

materials are both present, it is more likely the schemas most congruent with religious messages about premarital sex are accessed and behavior reflects this.

In addition, we will theorize how attitudes and pregnancy-related behaviors (sexual behavior, contraceptive use, and prior pregnancy) may serve as intervening variables that help explain *how* religious characteristics are related to early pregnancy. This will help us understand how schema and materials which are not necessarily overtly religious can align with religious schema to reinforce possible and preferable behaviors.

DATA AND METHODS

To test our hypotheses, we will use data from the Relationship Dynamics and Social Life (RDSL) study which started in 2008 with 60-minute face-to-face survey interviews of a population-based sample of 1,003 young women, ages 18-19, residing in a Michigan county. The baseline survey interview was conducted to assess important aspects of family background; demographic information; key attitudes, values, and beliefs; current and past friendship and romantic relationships; education; and career trajectories.

At the conclusion of this baseline interview, all respondents were invited to participate in a weekly journal-based study – a mixed mode (Internet and phone) survey—for 2.5 years. Each week respondents chose to complete the journal either by logging into the study's secure website, or by calling a toll free number and completing the journal with a live interviewer. Respondents were paid $1 per weekly journal with $5 bonuses for on-time completion of five weekly journals in a row. Automated reminder email and/or text messages were sent to respondents weekly. If a respondent was late, study staff first attempted to contact her by phone, and later by email and letter in attempt to regain her participation. Respondents who became 60 or more days late were offered an increased incentive for completing the next journal. Small gifts (e.g., pen, chapstick, compact, pencil) were also given to respondents to reward

continued participation. Our incentive scheme, coupled with the cooperative nature of this age group and their interest in the subject matter, resulted in extremely high cooperation rates: an 83% response rate and a 94% cooperation rate for the baseline interviews. Over 99% of respondents who completed a baseline interview enrolled in the weekly journal portion of the study (N=992). Weekly journal participation rates were approximately 61% (the proportion of respondents who have completed a journal in the past 30 days).

Measures

In this section, we describe our measures of pregnancy, religious characteristics, attitudes, pregnancy-related behaviors, and control variables. Religious characteristics and control variables all come from the baseline survey, and pregnancy, attitude, and pregnancy-related behavior measures all come from the weekly journal data.

Pregnancy. Each week, in the journal, respondents are asked, "Do you think there might be a chance that you are pregnant right now?" Respondents who answer yes are asked, "Has a pregnancy test indicated that you are pregnant?" Respondents who answer "yes" to the question about the pregnancy test are coded "1" for pregnant.

Religious Characteristics. *Religious affiliation* is measured by a series of questions about the religious tradition with which one identifies. The results have been recoded to fit the following typology of affiliations: conservative Protestant, Mainline Protestant, Catholic, other religion, no religion. *Religious service attendance* is measured by asking, "How often do you usually attend religious services - would you say several times a week, once a week, a few times a month, once a month, less than once a month, or never?", and is coded as never (0) to several times a week (5). *Frequency of prayer* is measured by asking, "About how often do you pray alone, if ever? Would you say you usually pray several times a day, about once a day, several times a week, about once a week, less than once a week, or never?" which is coded never (0) to several times a day

(5). *Religious importance* is measured using two questions. First, "How important if at all is your religious faith to you - would you say not important, somewhat important, very important, or more important than anything else?" Answers are coded as not important (1) to more important than anything else (4) with a mean of 2.69. Second, respondents are asked to "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 to act and live on a daily basis." Responses are coded from strongly disagree (1) to strongly agree (4). *Belief in God* is measured by asking respondents to "Please tell me which statement comes closest to expressing what you believe about God: I don't believe in God. I don't know whether 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. I believe that God exists." Each response is recoded to its own dummy variable, and "I believe that God exists" serves as the reference category. *Biblical literalism* is based on whether one strongly agrees, agrees, disagrees, or strongly disagrees that "The Bible is God's word and everything happened or will happen pretty much as it says." This is coded strongly disagree (1) to strongly agree (4).

Attitudes. To measure a series of general attitudes, respondents were given statements about sex, contraception, pregnancy, children, and marriage and were asked if they strongly agree, agree, disagree, or strongly disagree with the statements. Although the category was not offered by the interviewer, respondents could also provide a response of neither agree or disagree at the baseline interview. (This option was not provided when the questions were measured again in the journal.) These measures are coded from 1 to 5 (strongly disagree, disagree, neither agree or disagree, agree, strongly agree).

Sex

1. Young people should not have sex before marriage.

2. It is alright for young people to have premarital sex even if they are just friends.
3. If a girl has been seeing a guy for a while, she should have sex with him.
4. You are not ready to have a sexual relationship with anyone.
5. If you had sexual intercourse now, you would feel guilty.

Contraception

1. If a woman asks her partner to use a condom, he will think that she doesn't trust him.
2. Using birth control is morally wrong.
3. In general, birth control is too much of a hassle to use.
4. Using birth control is likely to make a woman feel sick.
5. Using birth control interferes with sexual enjoyment.
6. If a girl uses birth control, she is looking for sex.
7. In general, birth control is too expensive to buy.
8. It takes too much planning ahead of time to have birth control on hand when you're going to have sex.
9. It is easy for you to get birth control.
10. You can't afford to pay for birth control.

Pregnancy

1. It is better to get pregnant young because young women's bodies recover faster.
2. It is easier for young women to lose weight after a pregnancy.
3. It is alright for a woman to have a child without being married.
4. Getting pregnant at this time in your life is one of the worst things that could happen to you.
5. If you had a baby now, you would feel less lonely.

6. If you got pregnant now, you could handle the responsibilities of parenting.
7. If you got pregnant now, you would be forced to grow up too fast.
8. If you got pregnant now, you would have to quit school.
9. If you got pregnant now, your partner would be happy.
10. If you got pregnant now, you could not afford to raise the child.
11. If you got pregnant now, your family would help you raise the child.
12. It wouldn't be all that bad if you got pregnant at this time in your life.

Children

1. It is better to have kids young because the grandparents can be more involved.
2. Being a mother and raising children is the most fulfilling experience a woman can have.
3. It is hard for kids to have the oldest parents at their school.
4. Babies born to older mothers have more health problems.
5. Children cause worry and emotional strain for their parents.
6. Relationships between men and women improve after they have a baby together.

We will create an average index for each set of measures above to capture attitudes toward sex, birth control, pregnancy, and children. When appropriate, measures will be recoded prior to creating the indices so for all a high score represents more positive attitudes toward sex, birth control, etc.

Respondents were also asked about enjoying children, time spent with children and how much it would bother them if they never had children. These questions are coded from 0 to 5 where 0 is "not at all" and 5 is "extremely." These measures will also be averaged to create an index.

1. How much do you enjoy taking care of little children?

2. How experienced are you at caring for children?
3. Suppose your life turned out so that you never had children, how much would that bother you?

Pregnancy-Related Behaviors. Multiple prior pregnancy-related experiences will be included as controls. *Age at first sex* is coded as 14 years or less (15%), 15-16 years old (35%), or 17+ (including those who have not yet had sex) (50%). Number of sexual partners is coded as 0, 1, 2, 3, or 4+. Zero is the reference category. A dichotomous measure indicates whether a respondents *ever had sex without birth control* (45%). Number of prior pregnancies is coded as: 1) none (79%), 2) one (14%), and 3) two or more (7%). No prior pregnancies is the reference.

Controls. Several sociodemographic characteristics measured at the baseline interview will be included as controls in the analysis. *Age* is categorical and ranges from 18 to 20 years; the reference category is 18. *Race* is included as a dichotomous indicator for African American (33%) versus non-African American. *School enrollment/type* includes the following categories: 1) not enrolled and did not graduate from high school (8%), 2) not enrolled and graduated from high school (21%), 3) enrolled in high school (13%), 4) enrolled in two year college/vocational/technical/other (29%), and 5) enrolled in four year college (29%). Four year college is the reference category. A respondent is coded as *received public assistance* (23%) if she reported currently receiving at least one of the following: 1) WIC, 2) FIP, 3) cash welfare, or 4) food stamps. A dichotomous measure indicates whether the respondent is *living with a romantic partner* (14%), based on the question, "Do you have a place you live that is separate from where [Partner Name] lives?". A dichotomous measure indicates whether the *respondent's biological mother was less than 20 years old at her first birth* (35%). *Family structure* is based on the questions, "While you were growing up, which of the following people did you live with? / Which of these people did you live with for the majority of the time when you were growing up?" It includes the following three categories: 1) Two parents (both

biological parents = 48%; biological parent + step-parent = 8%); 2) one biological parent only (38%), and 3) other (8%). Two-parent family is the reference category. (Note: this category also includes adoptive parents, n = 14 families.) A dichotomous measure indicates whether the respondent's *mother's education is less than high school* (8%). *Parents' income* is coded as medium/high ($15,000+) (68%), low ($14,999 or less) (13%), or don't know/refused (19%).

Analytic Strategy

We will use event history methods to model the risk of pregnancy. Because the data are precise to the week, we use discrete-time methods to estimate these models. Person-weeks of exposure are the unit of analysis. We consider women to be at risk of pregnancy during all weeks they report that they are not currently pregnant. Although using person-weeks of exposure to risk as the unit of analysis substantially increases the sample size, Petersen (1986, 1991) and Allison (1982, 1984) have shown that using discrete-time methods does not deflate the standard errors and thus provides appropriate tests of statistical significance. Furthermore, because the probability of becoming pregnant is so small within each week, the estimates obtained using discrete-time methods are similar to those that would be obtained using continuous methods. In addition, because the probability of becoming pregnant is so small within each week, the hazard of pregnancy is similar to the pregnancy *rate*. Thus, in the text that follows we sometimes refer to the effects of the covariates on the pregnancy rate.

Our time-varying measures of respondents' attitudes and their pregnancy-related behaviors are measured three weeks prior to the current week of pregnancy status, in order to measure these characteristics *prior to* the sexual intercourse that resulted in the pregnancy. In other words, all time-varying covariates are lagged by three weeks. We adopt this strategy to guard against reciprocal causation. For instance, a young woman's recent discovery that she is pregnant may change her attitudes

toward having children or her contraceptive use. Of course, attitudes and contraceptive behavior may be important predictors of religious characteristics as well, and thus the reciprocal causation problem is not completely solved by the use of the time lag.

We will adopt a hierarchical modeling strategy, beginning with the religious characteristic measures and control variables and then adding the attitude measures and pregnancy-related behavior measures to subsequent models. Thus, the models are nested. This strategy enables us to examine whether the effects of religious characteristics are diminished with the introduction of attitude or pregnancy-related behavior measures. If they do, this provides evidence that the relationships between religious characteristics and pregnancy are mediated by these other factors.

EXPECTED CONTRIBUTIONS

This paper will shed light on the connections among multiple dimensions of religiosity (e.g., private and public; beliefs, behaviors, and identity salience), attitudes, behaviors, and family outcomes. Religion provides both schemas and materials that may drive (and be driven by) demographic behavior (Johnson-Hanks et al. 2011); indeed, religious organizations are commonly conceived of as social institutions that supply norms, beliefs, and rituals that pattern social attitudes and behaviors (Friedland and Alford 1991), but little is known about the connection between religion and early pregnancy, or *how* religion as an institution patterns demographic behaviors. By focusing on particular aspects of religious involvement and a number of attitudinal and behavioral intervening variables, we are able to identify the mechanisms through which religion as a sociocultural institution influences early pregnancy—if it does at all. These findings are more broadly indicative of the connections between attitudes, behaviors, and outcomes which are often only loosely coupled. Our results may potentially highlight the ways in which religious institutions can be utilized to stave off (unplanned or unwanted) pregnancy, or, alternatively, the ways in which religious institutions

problematically contribute to increased rates of such pregnancies. This paper also makes a significant methodological contribution by using data from a cutting-edge data collection effort to avoid many of the pitfalls associated with misreporting of pregnancy.

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