Brief Report

UNBUCKLING IN THE BIBLE BELT: CONSERVATIVE SEXUAL NORMS LOWER AGE AT MARRIAGE

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Abstract
Sociosexual norms, as well as marital patterns, vary widely across human history and culture. Yet, humans share an evolved psychobiology of sexual motivation that reliably leads to procreation through incentivizing sexual activity. We predicted that in socially monogamous societies with conservative norms for sexual behavior, the interaction of sexual motivation and strong discouragement of non-marital sex would lead to relatively earlier marriages on average, as young adults seek a socially sanctioned way of expressing their sexuality. We examined this hypothesis with United States Census data from the year 2000. We found that cities in the "Bible Belt," a region characterized by strong evangelical Christian sentiment, had significantly lower mean and median marital ages for both men and women, supporting our prediction. These relationships held when controlling for median household income, median family income, and even the operational sex ratio. We discuss our findings in terms of individuals minimizing discourse discrepancies and cognitive dissonance, to ultimately coincide with regional cultural norms.

Keywords: Bible Belt, marital age, social norm, religious affiliation, sexual behavior

Introduction

Before the sexual revolution of the 1960s made pornographic and "obscene" commercial products more publicly accessible in the United States, traveling "romantic product salesmen" roamed from town to town peddling such merchandise under the moniker of "marital aids." Ironically, most of these "romantic marital" products were sold to non-married men, and the primary sales territory was the sexually conservative Bible Belt (Athens, 2005). The Bible Belt is a region in the southeastern United States

where the culture is characterized by relatively strong evangelical Christian sentiment and high church attendance (see Figure 1). A recent study suggests that the ironic pattern of consumption of erotic products still holds, as six of the top ten states for Internet pornography subscriptions per thousand home broadband users were located in the Bible Belt (Edelman, 2009). Two other states ranking in the top ten for Internet pornography consumption are Alaska, with a highly male biased sex ratio, and Utah, largely populated by socially conservative Mormons (Edelman, 2009). This counter-intuitive relationship between religiosity and pornography consumption persists even when controlling for income, education, population density, marriage and divorce rate. The apparent paradox may reflect tension between an evolved psychobiology that encourages sexual gratification and local cultural norms that discourage sexual activity outside of marital union, as sex is viewed to be primarily for purposes of procreation.
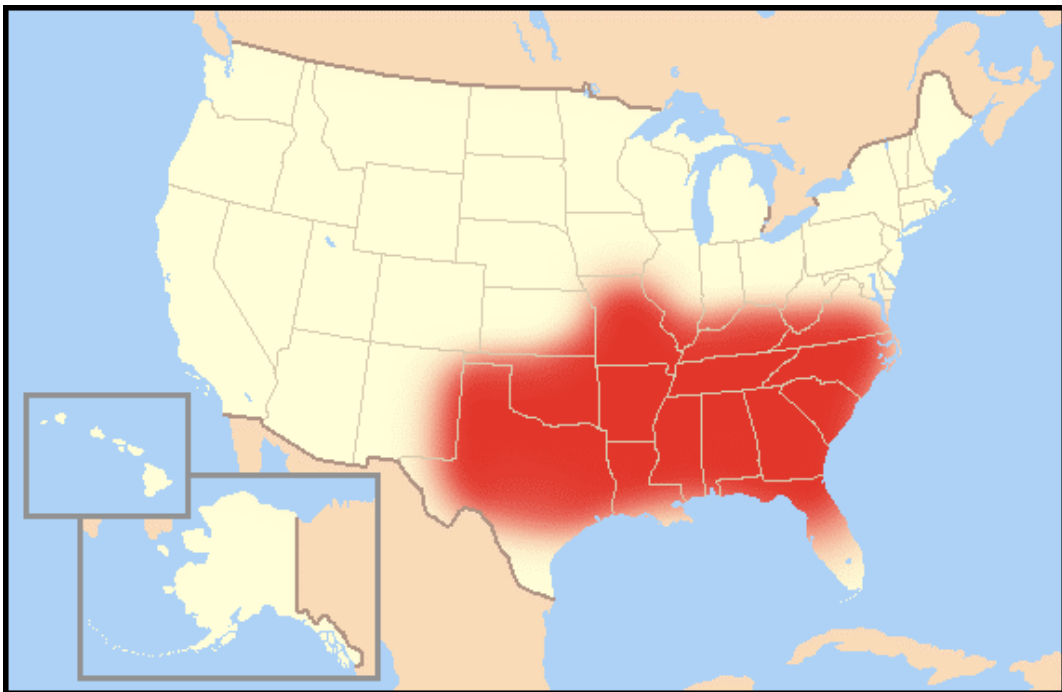

Figure 1. The United States Bible Belt (Data source: Glenmary Research Center, www.glenmary.org/grc/)

According to the 2010 Statistical Abstract of the United States, approximately three-fourths of the population report belonging to some denomination of the Christian faith. Despite strong dogmatic and public sentiment that sexual activity should be confined to married heterosexual couples, another striking contradiction arises. In the United States nearly 95% of Americans reported having sex outside of wedlock (Finer, 2007). Conservative Christian beliefs and frequency of church attendance are factors implicated in maintenance of traditional beliefs disapproving of premarital sex (Petersen & Donnenwerth, 1997). It appears that although sexually conservative religious thought

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nominally influences American culture and practice, the vast majority of the population engages in behaviors explicitly discouraged by their religion. Considering the intense emotional and physiological responses experienced during romantic attraction and love (Fisher, 2004), the persistence of premarital sexual activity is not altogether surprising as the context of sexual motivation can include both uncommitted and committed but unmarried pairs.

In the realm of mating, frustration attraction, or increased desire for something that is prohibited, can have a profound influence on individual behavior (Fisher, 2004). However, discrepancies between public and private discourse, especially relating to sexuality, may result in an internal conflict (Jankowiak & Paladino, 2008). In psychological terms, the desire to consensually engage in sexual activity while consciously maintaining a religious faith that condemns such behavior has the potential to create cognitive dissonance. In general, individuals should be motivated to reduce cognitive dissonance and the negative emotional state that persists as one simultaneously holds inconsistent cognitions (see Aronson, 1969). To reduce the discrepancy and potential dissonance between sexual motivation or sexual interest and local cultural customs, conflicted individuals may marry romantic partners sooner than others who subscribe to less conservative local customs in order to engage in socially sanctioned sexual activity. That is, individuals may marry relatively earlier in order to minimize time spent either sexually deprived or in conflict with local norms given that both states are undesirable for most individuals.

According to a 2006 Gallup poll, a majority of Americans believe that marriage is very important and that the ideal age at which to marry is 27 years for men and 25 years for women. The same poll states "opinions of the best ages of marriage do not vary substantially according to respondent gender, age, or religiosity". This may provide additional support that any differences in actual age at marriage may be more influenced by regional cultural norms than personal preference. That is, if *ideal* age of marriage does not vary according to self-identified religiosity, then any *actual* variation associated with religiosity may be primarily attributable to local customs contributing to inconsistent cognitions.

As such, we predicted that the interaction of the universal evolved psychobiology of sexual motivation and strong discouragement of non-marital sex would lead to relatively earlier marriages on average in areas of strong social pressure, as young adults seek a socially (and divinely) sanctioned way of experiencing their sexuality. We predicted this overall trend will occur for both men and women, as both genders should seek socially sanctioned sexual fulfillment and to reduce any potential dissonance. Using large-scale census data, we demonstrate the relationship between regional religious custom and marital age.

Methods

We used United States Census data from the year 2000 to calculate mean and median marital ages for both sexes, as well as other demographic indicators, in the 50 largest Metropolitan Statistical Areas (MSAs). We examined the relationship between mean and median marital age and whether or not a city was considered to be in the Bible Belt (where evangelical Christianity is prominent). We controlled for median household

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income, median family income, and the operational sex ratio for those aged 18-64 years, as these factors are known to influence marital patterns (Kruger & Schlemmer, 2009). We also separately examined MSAs considered to be in the "Buckle" of the Bible Belt, an area where the evangelical presence is most concentrated, and compared them to MSAs in the Bible Belt without the Buckle. In a convergent analysis, we examined the proportion of state residents who identified as Evangelical Christian according to the CNN (Cable News Network) 2008 post-election poll and compared this to the male and female median ages at first marriage for corresponding MSAs.

The following MSAs are categorized as being in the Bible Belt (excluding "Buckle"): Atlanta, GA; Birmingham, AL; Cincinnati-Hamilton, OH-KY-IN; Jacksonville, FL; Kansas City, MO-KS; Louisville, KY; Oklahoma City, OK; Orlando, FL; Raleigh-Durham-Chapel Hill, NC; Richmond-Petersburg, VA; Tampa-St.Petersburg-Clearwater, FL. The following subset of MSAs are categorized as being in the Buckle of the Bible Belt: Charlotte-Gastonia-Rock Hill, NC-SC; Dallas-Fort Worth, TX; Memphis, TN; Nashville, TN; Norfolk-Virginia Beach-Newport News, VA-NC; San Antonio, TX; Tulsa, OK.

Results

Consistent with our predictions, Metropolitan Statistical Areas (MSAs) in the Bible Belt had significantly lower mean and median marital ages for both men and women than MSAs outside the Bible Belt (see Figure 2). Further, those MSAs considered to be in the "Buckle" of the Bible Belt had even lower mean and median marital ages for both men and women than MSAs in the rest of the Belt (see Figure 2). These relationships held when controlling for median household income, median family income, and even the operational sex ratio.

Overall, the mean martial ages for men living outside the Bible Belt was 28.55 (SD=0.76), 27.88 (SD=1.08) for those living in the non-Buckle Bible Belt, and 26.94 (SD=0.96) for men in living within the Buckle region; the median martial age for men living outside the Bible Belt was 29.05, 27.90 for those living in the non-Buckle Bible Belt, and 26.80 for men in living within the Buckle region. The mean marital ages for women living outside the Bible Belt was 26.51 (SD=1.26), 25.82 (SD=0.91) for those living in the non-Buckle Bible Belt, and 25.07 (SD=1.29) for women in living within the Buckle region; median ages for women living outside the Bible Belt was 26.65, 26.10 for those living in the non-Buckle Bible Belt, and 25.00 for women in living within the Buckle region. Table 1 shows partial correlation results of mean and median marital ages for men and women, by Bible Belt region.

Additionally, the proportion of state residents who identified as Evangelical Christian according to the 2008 CNN poll had strong inverse relationships to male ($r(40)$ = -.75, $p < .001$) and female ($r(40)$ = -.64, $p < .001$) median ages at first marriage (See Figure 3).

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Table 1. Partial Correlation Results of Mean and Median Marital Ages for US Men and Women, by Region

	In the Bible Belt	**In the Buckle**
M **Male marital age**	-.480***	-.422**
M **Female marital age**	-.516***	-.409**
Md **Male marital age**	-.519***	-.395**
Md **Female marital age**	-.547***	-.362*

Note: * indicates p < .05, ** indicates p < .01, *** indicates p < .001. Results for MSAs in the Buckle of the Bible Belt are given in comparison to non-Buckle Bible Belt MSAs.
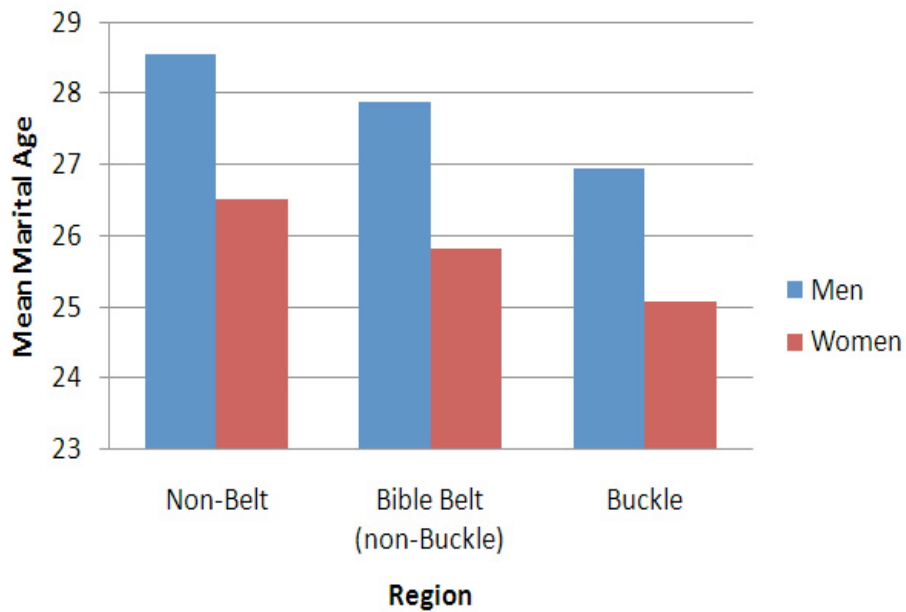

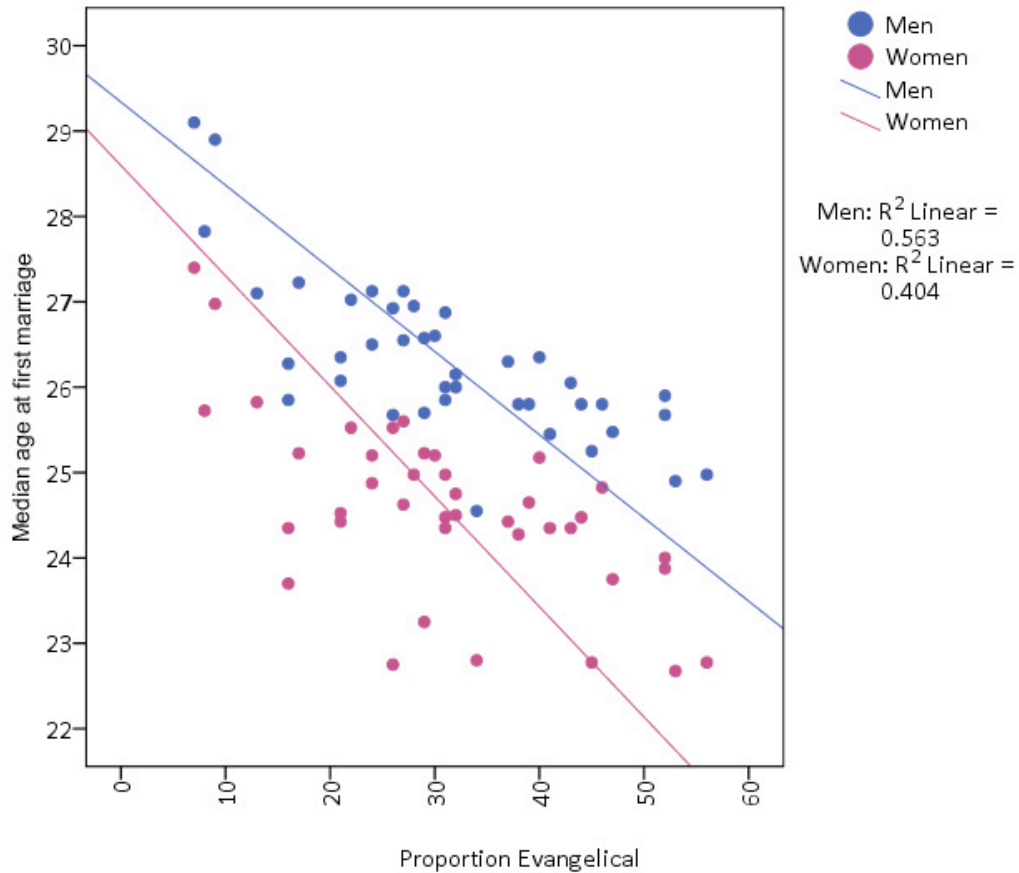**Figure 2.** Mean marital ages for US men and women, by region.

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Figure 3. Median marital ages for Metropolitan Statistical Areas (MSAs) by proportion of population identifying as Evangelical Christian.

Discussion

The findings presented here use United States Census data from the year 2000 to explore the relationship between age at marriage and regional customs discouraging premarital sexual activity, using "Bible Belt" categorization as an indicator. As predicted, the findings demonstrate that both men and women living in Metropolitan Statistical Areas (MSAs) within the evangelical Christian Bible Belt marry earlier on average than those living outside the Bible Belt. Further, those within the Buckle of the Bible Belt, which is considered the most evangelical region, marry even earlier than those in the rest of the Bible Belt. This trend held when controlling for median household income, median family income, and the operational sex ratio. Additionally, an analysis using a 2008 CNN poll assessing regional religiosity further demonstrates that age at marriage decreases as the proportion of state residents identifying as evangelical Christian increases.

Also as predicted, the direction of the trend for age at marriage and Bible Belt categorization occurred among both men and women. The age disparity between genders

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for mean age at marriage is likely representative of the general cross-cultural trend for men to be older than women in marriages (Hatfield & Rapson, 2005). It is worth noting that mean martial ages for both genders was slightly higher than the ideal reported in the 2006 Gallup Poll, with more evangelical regions having a mean age at marriage closer to the perceived ideal.

Although the relationship between religions and adaptation is rather complex (Richerson & Newson, 2008), it is clear that many religions have at least some practices that are instantiations of adaptive cultural evolution (Wilson, 2002). We suggest that evangelical social norms resemble those that adaptively promote in-group interests in between-group competitions. There is a significant reproductive advantage of religious affiliation across environmental contexts and time (Blume, 2009). Global data taken from the World Value Survey (1981-2004) suggests a strong correlation between the frequency of adults attending religious service (worship attendance) and the total number of children they have (Enste, 2007, as cited in Blume 2009). Using Swiss Census data, Blume (2009) found that women who are affiliated with a religious denomination, regardless of which particular one, have a higher average number of children compared to secular women. This reproductive advantage has been shown to occur even in spite of higher levels of education and higher income status (Blume et al, 2006; Blume, 2009). In addition to actual number of children, religiosity, as measured by religious affiliation and church attendance, is also positively correlated with a greater *ideal* number of children (Adsera, 2006).

Taken as a whole, the above suggests that the conservative sexual norms present in many American religious affiliations may indeed provide some evolutionary (reproductive) benefit. This may reinforce in-group social support in order to better provide for offspring and family units. However, sexually conservative sentiments clash with the evolved proclivities for sexual gratification reflected in the profound rate of consumption and promotion of sexuality in the larger contemporary American culture. Individuals who subscribe to local religious customs are thus more likely to face opposing cognitions regarding sexuality. We suggest here that one possible way individuals in religious environments may predictably reduce such conflict is by marrying at earlier ages – thus maintaining sexual practices in harmony with local norms.

We realize that our statements on the adaptiveness of Evangelical Christian sexual norms may be misinterpreted. To be clear, we recognize that mandates to increase family and group size could be beneficial in terms of enhancing the effectiveness of inter-group competition (including warfare) in contexts similar to the conditions in Biblical times. Adaptiveness in this context is defined in terms of survival and reproductive success of individuals and the collective social group. We *do not* claim that such norms are necessarily adaptive socially or psychologically in our study population. Contemporary Evangelical Christian lobbyists have encouraged abstinence-only sex education, discouraging sex before marriage. Such programs are inconsistent with the evolved psychobiology of humans, and the behavioral and reproductive patterns of contemporary America, where 95% of people have sex before marriage (Finer, 2007), in addition to historical demographic changes such as overall later ages at first marriage (Kantor, Santelli, Teitler & Balmer, 2008).

High rates of unintended pregnancy, the prevalence of sexually transmitted diseases, early age at first sex, and sequela following sexual behavior remain real social

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challenges in the United States. Uncommitted sexual behavior among young adults is becoming more socially permissive and normative, perhaps as a function of shifting life histories (Bogle, 2007; Garcia & Reiber, 2008), despite issues of individual discomfort with these activities (Paul & Hayes, 2002; Reiber & Garcia, 2010). As such, abstinence-only education hinders more complete sexuality education, and is both scientifically and ethically questionable (Santelli et al, 2006). Recognition of the actual sexual behaviors and evolved proclivities of Americans today could help shift the focus from abstinence-only programs to health-based risk-reduction programs.

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