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Associations Between Religiosity and Sexuality in a Representative Sample of Australian Adults

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RUNNING HEAD: Religiosity and Sexuality

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ABSTRACT

Many studies have examined the influence on sexual attitudes and behavior of religious belief (i.e., religious denomination) or religiosity (e.g., attendance at services, subjective importance of religion). However, few studies have examined the combined effects of religion and religiosity on sexual attitudes and behavior. This study examined such effects in a representative sample of 19,307 Australians aged 16-59 years (response rate 73.1%). The study compared members of four religious groups (Protestant, Catholic, Buddhist, Muslim) and two levels of frequency of attendance at religious service (less than monthly, at least monthly). Religious participants were compared to their non-religious peers in analyses adjusted for potential confounding by demographic variables. The outcomes were five sexual behaviors and five corresponding measures of sexual attitudes. The study revealed inconsistent patterns of association between religion/religiosity and a range of sexual behaviors and attitudes. In general, greater attendance at religious services was associated with more conservative patterns of behavior and attitudes. However, religious people who attended services infrequently were more similar to their non-religious peers than their more religious peers. The results of this study highlight the importance of considering not only religion or religiosity, but the intersection between these two variables.

KEY WORDS: religion; religiosity; sexual behavior; sexual attitudes.

Studies of religion and sexuality commonly find that religious beliefs and/or activities are associated with more conservative sexual attitudes, later initiation of sexual behavior, and a more narrow range of sexual experiences (Cochran & Beeghley, 1991; Cochran, Chamlin, Beeghley, & Fenwick, 2004; Davidson, Moore, & Ullstrup, 2004; Hardy & Raffaelli, 2003; Jones, Darroch, & Singh, 2005; Laumann, Gagnon, Michael, & Michaels, 1994; Lefkowitz, Gillen, Shearer, & Boone, 2004; Le Gall, Mullet, & Shafighi, 2002; Leiblum, Wiegel, & Brickle, 2003; Lottes, Weinberg, & Weller, 1993; Meier, 2003; Miller & Gur, 2002; Paul, Fitzjohn, Eberhart-Phillips, Herbison, & Dickson, 2000; Rostosky, Regnerus, & Wright, 2003; Rostosky, Wilcox, Wright, & Randall, 2004; Sandfort, Bos, Haavio-Mannila, & Sundet, 1998; Zaleski & Schiaffino, 2000). The strongest evidence for links between religion/religiosity and sexual behavior comes from longitudinal prospective studies. An interesting finding of such longitudinal research is that the link between religiosity and sexuality appears to be unidirectional: longitudinal research indicates that adolescent initiation of sexual activity does not lead to changes in religiosity (Hardy & Raffaelli, 2003; Meier, 2003). However, these studies reveal that later coital debut among adolescents and young adults is predicted by greater participation in religious activities and higher personal importance of religion (Paul et al., 2000; Rostosky et al., 2003, 2004). The conclusion drawn from such studies in Christian cultures is that religion provides and reinforces a sexual ideology that prohibits adolescent sexual intercourse (Rostosky et al., 2003). More broadly, the sexual lifestyles endorsed by many major religions center on procreative sexual activity within heterosexual marriage.

It must be noted that religion per se may not lead to more conservative sexual behaviors and attitudes. For example, some studies of young people indicate that adherents of particular non-Christian religions may have more liberal attitudes and patterns of behavior (Janghorbani, Lam, & the Youth Sexuality Study Taskforce, 2003; Leiblum et al., 2003; Lottes & Kuriloff, 1994). It is therefore important to consider the orientations toward sexuality of particular religions. Islam, Judaism and Christianity - all monotheistic-Abrahamic religions - proscribe sexual activity outside of heterosexual marriage. The

Catholic church has a clear anti-contraception stance, but other Christian denominations and Islam are less strict in this regard. All of these religions oppose abortion. It is interesting to compare these views with those of Buddhism. Although Buddhism has no strict rules about particular behaviors, observation of the four ethical precepts of Buddhism would preclude affairs, abortion, and the use of sexually explicit material. Compared to adherents of other religions or belief systems, Buddhists may perceive fewer injunctions against homosexuality and premarital sex (marriage is not a Buddhist service).

In addition to considering the type of religious belief, it is important to consider religiosity. Religiosity is the strength of religious belief as expressed in attitudes (e.g., the subjective importance of religion) and behavior (e.g., frequency of church attendance). In many studies, the operationalization of religion/religiosity is incomplete. Some studies examine differences between religious denominations, or more commonly between Christians and people with no religious belief, but do not consider the strength of belief or the influence of religious activity (e.g., Janghorbani et al., 2003; Le Gall et al., 2002; Lottes & Kuriloff, 1994). Other studies only measure religiosity (e.g., frequency of church attendance, subjective importance of religious belief) but do not consider religion (e.g., Hardy & Raffaelli, 2003; Lottes et al., 1993; Meier, 2003; Rostosky et al., 2003). A small number of studies measure both religion and religiosity, but do not examine the intersection of belief and practice, instead examining them in independent analyses (e.g., Jones et al., 2005; Laumann et al., 1994). Combined measures of religion/religiosity enhance our understanding of the influence of religious belief on sexuality. One recent American study that did assess the intersection of religion and religiosity found that within religious groups, greater religiosity was associated with a lower likelihood of premarital sex, extramarital sex, and homosexual sex (Cochran et al., 2004). There is a need to determine whether similar effects are observed in different populations, for different sexual behaviors, and for sexual attitudes.

One limitation of the existing body of knowledge is that it is largely based on studies of (mainly U.S.) young people and has mainly focused on initiation of coital activity. Older samples and other behaviors are less commonly examined. There is a lack of data from

population-representative samples, and a relative absence of information about a range of sexual behaviors and attitudes.

The Australian Study of Health and Relationships (ASHR) offered an opportunity to answer the question “What is the relationship between religion and sexual behaviors and attitudes?” via analysis of a large representative sample of Australian adults. This study adds to existing knowledge in several ways: (1) it is the first study of sexual behavior in a large representative sample of Australian adults; (2) the analyses consider not simply religion or religiosity, but the religion/religiosity interaction; (3) the large sample size allowed an analysis of the major Christian denominations as well as larger non-Christian religions; (4) it was possible to examine sexual behaviors and their corresponding attitudes.

METHOD

Participants and Procedure

Details of the methodology used in the ASHR are provided elsewhere (Smith, Rissel, Richters, Grulich, & de Visser, 2003a). Computer-assisted telephone interviews were completed by a nationally representative sample of 19,307 Australian men and women aged 16–59 years selected via modified random-digit-dialing (response rate, 73.1%). A two-phase methodology was used: all participants answered core questions; a sub sample of 7653 provided more detailed information, including sexual behavior in the last year. The study was approved by the Human Ethics Committees of La Trobe University, the University of New South Wales, and the Central Sydney Area Health Service.

Measures

Participants described their religion or faith (if any). Table I shows how the raw data were recoded. The “no religion,” “Catholic,” “Buddhist,” and “Muslim” groups were retained. A “Protestant” group was formed by combining Anglican/Church of England, Uniting Church, Presbyterian and Reformed, and Lutheran. Although this 5-level classification excluded some participants, it had benefits: it allowed comparisons between

people with no religion and adherents to the two major Christian denominations and two major non-Christian religions (including one non-monotheistic-Abrahamic religion); it avoided artificial groupings of denominations (e.g., combining Hindus with Jews in an “other religion” group); and it avoided including groups with very small numbers of participants. Reports of frequency of attendance at religious services were dichotomized to identify participants who attend religious services at least monthly. The “no religion” group was coded as attending religious services less than monthly. The 5-category religion variable and the dichotomous frequency of attendance variable were cross-tabulated to produce a 9-category religion/religiosity variable.

 insert Table I about here

Measures of five sexual behaviors and five attitudes are described below. The attitude items were adapted from national sex surveys in Britain (Johnson, Wadsworth, Wellings, & Field, 1994) and the U.S.A. (Laumann et al., 1994). All attitude items included a five-point response scale (strongly agree/agree/neither/disagree/strongly disagree). Responses were dichotomized to identify participants who agreed or strongly agreed with each statement.

Participants’ reports of their age when they first had vaginal intercourse (if at all) and their age when they (first) married (if at all) allowed the creation of a dichotomous variable identifying participants who had had premarital sex. The corresponding attitude item was “Sex before marriage is acceptable.”

Participants indicated whether in the last 12 months they had watched an X-rated video or film. The attitude item related to this behavioral measure of watching sexually explicit movies was “Films these days are too sexually explicit.”

Participants who indicated that they had been in a regular relationship for at least 12 months and who reported more than one sexual partner in the last 12 months were coded as non-monogamous. This measure may give conservative estimates of non-monogamy, because only participants who had been in a relationship for at least 12 months were

considered as potentially non-monogamous. The corresponding attitude item was “Having an affair when in a committed relationship is always wrong.”

Women who had ever been pregnant indicated whether they had ever had a termination of pregnancy. Men did not provide data relating to experiences of termination of pregnancy. The corresponding attitude item was “Abortion is always wrong.”

Participants indicated whether they had ever had a sexual experience with a person of the same sex. The corresponding attitude items for this behavioral measure of homosexual activity were “Sex between two adult men is always wrong” (male participants) and “Sex between two adult women is always wrong” (female participants).

Analysis

Data were weighted to adjust for the probability of household selection and for the probability of selection of individuals within households. Further weighting on the basis of age, sex, and area of residence ensured that both the full sample and sub-sample represented the Australian population as reported in the 2001 Census (Smith et al., 2003a). Weighted data were analyzed via logistic regression using the survey estimation commands in Stata Version 7.0 (StataCorp, 2002). The tables contain weighted percentages with 95% confidence intervals (CIs) and odds ratios (ORs) with CIs adjusted for demographic confounders, using the non-religious as the reference group. Using survey estimation commands to deal with the complex data weights, it was not possible to simultaneously examine main effects of religion and frequency of attendance and interactions between these two variables. Because several non-orthogonal analyses were made, a conservative significance level ($p < .01$) was used.

Within the ASHR sample, there were significant associations (all at $p < .001$) between the 9-category religion/religiosity variable and age; language spoken at home; education; region of residence; and household income. These associations are not displayed here, but are available on request. Other analyses of ASHR data have revealed significant associations between demographic variables and the sexual behaviors and attitudes examined in this paper (Grulich, de Visser, Smith, Rissel, & Richters, 2003; Rissel, Richters, Grulich, de Visser, &

Smith, 2003; Smith, Rissel, Richters, Grulich, & de Visser, 2003b). Given these associations, it was decided to adjust analyses for demographic variables to avoid spurious correlations between religion/religiosity and sexual behavior/attitudes. For each of the five behavior-attitude pairs, analyses were conducted to examine associations with religion, religiosity, and the religion/religiosity interaction. To limit the number of tables, and to make reading the tables easier, only the interactions are displayed. The main effects of religion and religiosity are not displayed in the tables, but they are described in the text, and detailed data are available from the first author.

RESULTS

Premarital Sex

Compared with non-religious men, Catholics (OR = 0.74; CI = 0.57–0.95; $p = .020$), Protestants (OR = 0.58; CI = 0.45–0.74; $p < .001$), and Muslims (OR = 0.24; CI = 0.10–0.58; $p = .002$), but not Buddhists (OR = 0.64; CI = 0.26–1.56; $p = .330$), were significantly less likely to have had premarital sex. In comparison to non-religious men, Catholic (OR = 0.18; CI = 0.11–0.30; $p < .001$), Protestant (OR = 0.24; CI = 0.14–0.41; $p < .001$), Buddhist (OR = 0.14; CI = 0.03–0.58; $p = .005$), and Muslim (OR = 0.08; CI = 0.02–0.31; $p < .001$) men were significantly less likely to believe premarital sex to be acceptable.

Men who attended services at least monthly were significantly less likely to have had premarital sex (OR = 0.20; CI = 0.15–0.26; $p < .001$), and significantly less likely to approve of premarital sex (OR = 0.16; CI = 0.10–0.25; $p < .001$).

Table II shows that non-religious men were significantly more likely to have had premarital sex than were Catholic, Protestant, and Muslim men who attended services at least monthly. Non-religious men were significantly more likely to endorse premarital sex than were all religious men except Buddhists who attended services less than monthly.

insert Table II about here

Catholics (OR = 0.37; CI = 0.30–0.45; $p < .001$), Protestants (OR = 0.49; CI = 0.39–0.61; $p < .001$), Buddhists (OR = 0.40; CI = 0.21–0.75; $p = .007$), and Muslims (OR = 0.05; CI = 0.02–0.12; $p < .001$) were significantly less likely than non-religious women to have had premarital sex. Compared with non-religious women, Catholics (OR = 0.19; CI = 0.12–0.31; $p < .001$), Protestants (OR = 0.25; CI = 0.15–0.43; $p < .001$), and Muslims (OR = 0.05; CI = 0.01–0.22; $p < .001$), but not Buddhists (OR = 0.27; CI = 0.08–0.97; $p = .044$), were significantly less tolerant of premarital sex.

Women who attended services at least monthly were significantly less likely to have had premarital sex (OR = 0.26; CI = 0.20–0.32; $p < .001$) and significantly less likely to endorse premarital sex (OR = 0.12; CI = 0.08–0.20; $p < .001$).

Table II shows that non-religious women were significantly more likely to have had premarital sex than were all Catholics, Protestants, and Muslims. Non-religious women were significantly more likely to approve of premarital sex than were all religious women except Protestants and Buddhists who attend services less than monthly.

Sexually Explicit Movies

Compared with non-religious men, Protestants (OR = 0.62; CI = 0.46–0.84; $p = .002$), but not Catholics (OR = 0.97; CI = 0.74–1.26; $p = .800$), Buddhists (OR = 0.72; CI = 0.23–2.26; $p = .568$), or Muslims (OR = 0.32; CI = 0.10–1.08; $p = .066$), were significantly less likely to have watched X-rated films in the last year. Compared with non-religious men, Catholics (OR = 1.84; CI = 1.36–2.47; $p < .001$) and Protestants (OR = 1.87; CI = 1.32–2.66; $p < .001$), but not Buddhists (OR = 1.12; CI = 0.34–3.68; $p = .846$) or Muslims (OR = 2.50; CI = 0.72–8.73; $p = .151$), were significantly more likely to believe that films are too sexually explicit.

Men who attended services at least monthly were significantly less likely to have watched X-rated films (OR = 0.51; CI = 0.33–0.77; $p = .002$), and significantly more likely to think that films are too sexually explicit (OR = 2.03; CI = 1.35–3.05; $p = .001$).

Table III shows that non-religious men were significantly more likely to have watched an X-rated film in the last year than were Protestants who attended church at least monthly. Non-religious men were significantly less likely to believe that films are too sexually explicit than were all Catholic men, and Protestant men who attended church less than monthly.

 insert Table III about here

Non-religious women were no more likely to have watched an X-rated video than Catholics (OR = 0.72; CI = 0.49–1.05; $p = .086$), Protestants (OR = 0.95; CI = 0.62–1.43; $p = .793$), Buddhists (OR = 0.52; CI = 0.10–2.71; $p = .439$) or Muslims (OR = 1.64; CI = 0.42–6.47; $p = .476$). Compared with non-religious women, Catholics (OR = 1.58; CI = 1.17–2.13; $p = .003$) and Protestants (OR = 1.93; CI = 1.41–2.66; $p < .001$), but not Buddhists (OR = 0.92; CI = 0.36–2.33; $p = .853$) or Muslims (OR = 3.04; CI = 0.75–12.36; $p = .119$), were significantly more likely to believe that films are too sexually explicit.

Among women, there was no significant main effect of frequency of attendance at religious services on watching X-rated films in the last year (OR = 0.65; CI = 0.38–1.12; $p = .123$). However, women who attended services at least monthly were significantly more likely to believe that films are too sexually explicit (OR = 1.79; CI = 1.21–2.63; $p = .003$).

Table III shows that religion/religiosity was not significantly related to whether women watched an X-rated film in the last year. Non-religious women were significantly less likely to believe that films are too sexually explicit than were all Protestant women.

Non-Monogamy

Compared with non-religious men, Buddhists (OR = 0.10; CI = 0.02–0.41; $p = .001$), but not Catholics (OR = 0.98; CI = 0.67–1.42; $p = .894$), Protestants (OR = 0.84; CI = 0.54–1.30; $p = .426$) or Muslims (OR = 0.36; CI = 0.06–2.29; $p = .280$), were significantly less likely to be non-monogamous. In comparison to non-religious men, Catholics (OR = 1.50; CI = 1.11–2.02; $p = .008$), but not Protestants (OR = 1.18; CI = 0.84–1.68; $p = .342$), Buddhists

(OR = 0.42; CI = 0.16–1.12; $p = .083$), or Muslims (OR = 0.42; CI = 0.12–1.53; $p = .188$), were significantly more likely to believe than an affair is always wrong.

Men who attended services at least monthly were no more or less likely to have been non-monogamous (OR = 0.63; CI = 0.34–1.18; $p = .150$) or to believe that affairs are wrong (OR = 1.80; CI = 1.15–2.83; $p = .011$).

The data in Table IV show that non-religious men were significantly more likely to have been non-monogamous than were Buddhist men who attended services less than monthly. Non-religious men were significantly less likely to believe that affairs are wrong than were Protestant men who attended church at least monthly.

insert Table IV about here

In comparison to non-religious women, Catholics (OR = 0.68; CI = 0.38–1.23; $p = .199$), Protestants (OR = 0.69; CI = 0.35–1.37; $p = .290$), and Buddhists (OR = 0.78; CI = 0.12–4.88; $p = .788$) were no more or less likely to have been non-monogamous. Compared with non-religious women, Catholics (OR = 1.53; CI = 1.09–2.14; $p = .013$), Protestants (OR = 1.35; CI = 0.94–1.95; $p = .105$), Buddhists (OR = 0.60; CI = 0.10–3.57; $p = .577$), and Muslims (OR = 2.36; CI = 0.32–17.40; $p = .398$) were no more or less likely to believe that having an affair is always wrong.

Women who attended services at least monthly were no less likely to have been non-monogamous (OR = 0.34; CI = 0.15–0.80; $p = .013$), but were significantly more likely to disapprove of affairs (OR = 2.58; CI = 1.59–4.19; $p < .001$).

Table IV shows that non-religious women were significantly more likely to have been non-monogamous than were Protestant women who attended church at least monthly. Non-religious women were significantly less likely to believe that affairs are wrong than were Catholics, Protestants, and Buddhists who attended services at least monthly, and Muslims who attended services less than monthly.

Termination of Pregnancy

Men did not provide data on experience of termination of pregnancy. In comparison to non-religious men, Catholics (OR = 3.65; CI = 2.59–5.15; $p < .001$) and Protestants (OR = 1.94; CI = 1.26–2.98; $p = .003$) were significantly more likely to believe that abortion is always wrong, but no difference was found for Buddhists (OR = 1.29; CI = 0.42–3.96; $p = .653$) or Muslims (OR = 4.98; CI = 0.90–27.61; $p = .067$). Men who attended services at least monthly were significantly more likely to believe that abortion is wrong (OR = 4.61; CI = 3.00–7.07; $p < .001$).

Table V shows that non-religious men were significantly less likely to believe that abortion is wrong than were all Catholic men, Protestant men who attended church at least monthly, and Buddhist men who attended services less than monthly.

insert Table V about here

Compared with non-religious women, Catholic women (OR = 0.48; CI = 0.32–0.72; $p < .001$) were significantly less likely to have had a termination of pregnancy, but no difference was found for Protestants (OR = 0.68; CI = 0.45–1.04; $p = .074$), Buddhists (OR = 1.06; CI = 0.28–4.04; $p = .928$) or Muslims (OR = 3.11; CI = 0.66–14.59; $p = .149$). In comparison to non-religious women, Catholics (OR = 3.33; CI = 2.29–4.86; $p < .001$) were significantly more likely to believe that abortion was always wrong, but no difference was found for Protestants (OR = 1.69; CI = 1.05–2.73; $p = .031$), Buddhists (OR = 0.70; CI = 0.16–3.00; $p = .626$) or Muslims (OR = 4.36; CI = 0.84–22.52; $p = .079$).

Women who attended services at least monthly were significantly less likely to have had a termination (OR = 0.31; CI = 0.16–0.59; $p < .001$), and significantly more likely to believe that abortion is wrong (OR = 7.01; CI = 4.51–10.91; $p < .001$).

Table V shows that non-religious women were significantly more likely to have had a termination of pregnancy than were Catholic women who attended church at least monthly.

Non-religious women were significantly less likely to believe that abortion is wrong than were Catholic and Protestant women who attended church at least monthly.

Homosexuality

Compared with non-religious men, Catholics (OR = 0.53; CI = 0.39–0.73; $p < .001$) and Protestants (OR = 0.44; CI = 0.31–0.63; $p < .001$), but not Buddhists (OR = 0.75; CI = 0.33–1.67; $p = .480$) or Muslims (OR = 0.41; CI = 0.08–2.07; $p = .284$), were significantly less likely to have had homosexual experiences. In comparison to non-religious men, Catholics (OR = 2.09; CI = 1.58–2.77; $p < .001$), Protestants (OR = 1.80; CI = 1.29–2.51; $p < .001$), and Muslims (OR = 10.81; CI = 3.17–36.88; $p < .001$) were significantly more likely to believe that sex between two men is always wrong, but Buddhists (OR = 0.26; CI = 0.09–0.76; $p = .014$) were no more or less likely to hold this belief.

Men who attended services at least monthly were no less likely to have homosexual experience (OR = 0.52; CI = 0.31–0.86; $p = .011$), but were significantly more likely to disapprove of male homosexuality (OR = 2.53; CI = 1.72–3.72; $p < .001$).

Table VI shows that non-religious men were significantly more likely to have homosexual experience than were Catholic and Protestant men who attended church less than monthly. In comparison to non-religious men, all Catholics, Protestants who attended services at least monthly, and Muslims who attended services at least monthly, were significantly more likely to believe that male homosexuality is always wrong.

insert Table VI about here

In comparison to non-religious women, Catholics (OR = 0.30; CI = 0.23–0.39; $p < .001$) and Protestants (OR = 0.24; CI = 0.17–0.33; $p < .001$), but not Buddhists (OR = 1.03; CI = 0.49–2.18; $p = .937$) or Muslims (OR = 0.23; CI = 0.03–1.68; $p = .146$), were significantly less likely to have homosexual experience. Compared with non-religious women, Catholics (OR = 1.99; CI = 1.38–2.89; $p < .001$) and Protestants (OR = 1.90; CI = 1.29–2.78; $p = .001$), but not Buddhists (OR = 2.04; CI = 0.73–5.70; $p = .176$) or Muslims

(OR = 3.27; CI = 0.72–14.92; $p = .127$), were significantly more likely to believe that sex between two women is always wrong.

Women who attended services at least monthly were significantly less likely to have homosexual experience (OR = 0.19; CI = 0.11–0.32; $p < .001$) and significantly more likely to disapprove of female homosexuality (OR = 3.79; CI = 2.45–5.88; $p < .001$).

Table VI shows that non-religious women were significantly more likely to have homosexual experience than were all Catholics and Protestants. Non-religious women were significantly less likely to believe that homosexuality is wrong than were Catholics and Protestants who attended church at least monthly.

DISCUSSION

The answer to the question “What is the relationship between religion and sexual behaviors and attitudes?” appears to be “It depends on the religion, the degree of religiosity, and the behavior or attitude of interest.” A focus on either religion or religiosity will give an incomplete understanding of the relationship between religion and sexual attitudes and behavior. The need to assess both religion and frequency of attendance at religious services is similar to the need in health research to assess not only whether people drink alcohol, but how much alcohol they drink, because moderate alcohol consumption is beneficial for health, whereas excessive consumption is detrimental (White, 1999). The findings of the current study expand on those of Cochran et al. (2004) in the U.S.A. by focusing on a more broad range of behaviors and attitudes within a large representative sample of Australian adults.

The general pattern found in this study was that although religious participants were no less likely to have been non-monogamous, they were significantly less likely to have had premarital sex, a termination of pregnancy, or homosexual sex. There were also main effects for frequency of attendance at religious services: although more frequent attendance was not related to being non-monogamous, it was related to being less likely to have had premarital sex, a termination of pregnancy, or homosexual sex. Analyses of interaction effects revealed that in most cases the sexual behavior and attitudes of religious people who attended services

less than monthly were not significantly different from those of people with no religion. However, more conservative patterns of sexual behavior and attitudes were reported by Christians who attended church at least once a month. It appears that religions are able to exert some social control over the sexual attitudes and behaviour of their adherents. People who have more frequent contact with an organised religion (e.g., through attendance at religious services) are more likely to be influenced by the teaching of their religion in a range of domains, including sexuality (e.g., Hardy & Raffaelli, 2003; Lottes et al., 1993; Meier, 2003; Rostosky et al., 2003). It is interesting that for some behaviors, the results indicate that more religious Buddhists and Muslims were less conservative. However, in most of these cases both the more religious and less religious respondents varied from the “no religion” group in the same direction: as noted below, the analyses for Buddhists and Muslims may be less reliable due to relatively small numbers of adherents to these religions.

Significant associations between religion/religiosity and sexual behavior/attitudes were observed for past behavior, recent behavior, and current attitudes. These findings indicate that the influences of religion/religiosity on sexuality are diverse in terms of various aspects of sexuality and their timing across people’s lives. However, it is interesting to note that the strongest evidence of a link between religion/religiosity and sexual behavior was found in analyses of premarital vaginal intercourse, which, for most people, was the behavior most distant in time from the interview. One interpretation of this finding is that the influence of religion on sexual behavior may be greatest for “threshold” behaviors when people are young such as initiation of coital activity. An alternative explanation for this finding relates to the number of respondents who had engaged in each behavior: the relative lack of significant differences in Table IV (non-monogamy) and Table VI (homosexual experience) may be influenced by the fact that only a small minority had engaged in these behaviors, whereas the majority of respondents reported pre-marital sex.

The patterns of association were broadly similar for men and women. However, there were some gender differences. For example, among men, premarital sex and homosexual behaviour were less common only among Christians who attended services more frequently,

yet, among women, premarital sex was less likely among religious women regardless of their frequency of attendance at religious services. Further research would be needed to explain why frequency of attendance at religious services appeared to add more to explanations of men's sexual behaviour than women's sexual behaviour.

Among women, only Catholics who attended church at least once a month were less likely than non-religious women to have had an abortion. Although each of the religions included in this study oppose abortion, the Catholic church has well-known strong beliefs about contraception and abortion. Catholic women's acceptance of these strong beliefs about abortion were manifest in their abortion-related behavior and attitudes. However, to emphasize again the importance of both religion and religiosity, it is important to note that Catholic women who attended church less than monthly were no less likely than non-religious women to have had an abortion. Again, the social control exerted by the church appears to me mediated by frequency of church attendance (e.g., Rostosky et al., 2003).

Associations between frequency of attendance and attitudes and behavior differed for different religious groups. In general, more frequent attendance was associated with less varied experience and less permissive attitudes. However, this association was not always as obvious for the two non-Christian groups. In particular, there were very few difference between Buddhists and people with no religion across a range of sexual behaviors and attitudes. This may reflect Buddhism's less strict controls on sexual behavior. However, it is also important to note that the relatively small numbers of Buddhists ($n = 226$) and Muslims ($n = 192$) may have reduced the statistical power to detect significant differences (Cohen, 1988). This was reflected in the wide confidence intervals for the population prevalence estimates, and may help to explain why in some cases it appeared that Buddhists and Muslims who attended religious services less frequently were more sexually conservative. Oversampling of Buddhists and Muslims may have increased confidence in the results. However, it should be noted that religious differentials in sexual behavior were not a driving force in the design of the ASHR, which was designed to examine a range of aspects of sexual behavior and sexual health. More specialized studies which oversample particular religious

groups within representative samples may be required to further our understanding of the issues addressed in this study.

Although this study improved on the methodologies employed in previous studies by considering the interaction of religion and religious attendance within a representative sample, other studies have employed more comprehensive measures of religiosity. Unlike other studies (e.g., Lefkowitz et al., 2004; Miller & Gur, 2002; Rostosky et al., 2003), this study did not assess the subjective importance of religion or individuals' beliefs about the importance of religion in shaping their sexual behavior and attitudes. However, different measures of religiosity are often highly correlated (e.g., those who attend services more frequently also give a greater importance to their religious beliefs) such that the different measures are often combined to form a composite index of religiosity (e.g., Hardy & Raffaelli, 2003; Meier, 2003; Pluhar, Frongillo, Stycos, & Dempster-McClain, 1998). The observed high correlations between different measures of religiosity suggest that the measure of frequency of attendance used in this study was a proxy measure of importance of religion. The most comprehensive operationalization of religion/religiosity is that of Lefkowitz et al. (2004), who assessed identity (affiliation), behavior (frequency of attendance), attitude (subjective importance of religion), perception (the religion's views of sex), and practice (adherence to the religion's views of sexual behavior). However, as suggested above, only in studies designed specifically for the analyses of religion/religiosity could sufficient space be devoted to a comprehensive operationalization of these variables.

A further reason for caution in interpreting some of the results of this study is that it is not possible to be certain that current religion/religiosity was identical to that at the time of past behaviors such as premarital sex. Longitudinal studies with long follow-up periods would be required to address this issue. However, as noted in the introduction, previous longitudinal research suggests that although religion/religiosity affects sexual activity, engagement in particular sexual behaviors does not appear to affect religion/religiosity in consistent, predictable ways (Hardy & Raffaelli, 2003; Meier, 2003).

Confidence in the results of the current study comes from the finding that sexual behavior and sexual attitudes were generally associated with religion/religiosity in similar ways. The one clear exception to this pattern was found in the examination of attitudes toward sexual content in films and the behavior of watching X-rated films (Table III). In that case, the correspondence between the behavior and the attitude was less precise than for each of the other behavior-attitude pairs. However, previous research suggests strong correlations between attitudes and behavior in this domain (Lottes et al., 1993).

In comparison to the 2001 Australian Census of Population and Housing (Australian Bureau of Statistics, 2005), the ASHR found a greater proportion of non-religious people (46% in ASHR, 16% in census). However, studies of population representative samples frequently find this difference (e.g., Hayes & Marangudakis, 2001; Nieuwbeerta & Flap, 2000). The greater proportion of non-religious people may reflect differences in the wording of questions. The Census question is “What is the person’s religion?”, with the response options: Catholic, Anglican (Church of England), Uniting Church, Presbyterian, Greek Orthodox, Baptist, Lutheran, Islam, Buddhist, Other. The ASHR question was “Do you have a particular religion or faith?”. Some participants with religious beliefs - e.g., those with new age or theist beliefs - may have responded “no” to the first question because they did not have a particular religion. In addition, non-practicing religious people may have been classified (or self-classified) as having no religion. This difference may also arise if people feel that because the Census form is an official government document they should state their “official” religion, even if this is actually nominal (e.g., the religion into which they were baptized) rather than a religion they currently believe or practice. An alternative explanation is that religious respondents were more likely to be non-responders. However, this explanation cannot explain why the effect observed in this study of “Health and Relationships” is also observed in social research into less private topics (e.g., Hayes & Marangudakis, 2001; Nieuwbeerta & Flap, 2000).

This study of a representative sample of Australian adults found inconsistent patterns of association between religion/religiosity and a range of sexual behaviors and attitudes. In

general, greater attendance at religious services within particular religions was associated with more conservative patterns of behavior and attitudes, but religious people who attended services infrequently were generally similar to their non-religious peers. The major methodological conclusion of this study is that to better understand the links between religion/religiosity and sexuality, we must consider the interaction between the type of religious belief and the amount of religious activity. At a broader, more conceptual level, the major conclusion is that religious belief per se does not lead to less permissive sexual attitudes and a more restricted range of sexual behaviors. Overall, only religious people who attended religious services on a regular basis had different patterns of behavior and attitudes than non-religious people. Religious people who rarely attend services were more similar to their non-religious peers than more devout members of their own religion.

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Table I Distribution of sample by religious belief

Original categories	n	%	Recoded	n	%
Atheist/Agnostic/No religion	8795	45.6	No religion	8795	45.6
Catholic	4093	21.2	Catholic	4093	21.2
Anglican / Church of England	2294	11.9	Protestant	3375	17.5
Uniting	620	3.2	Protestant		
Presbyterian + Reformed	288	1.5	Protestant		
Lutheran	173	0.9	Protestant		
Baptist	308	1.6			
Orthodox Christian	490	2.5			
Other Christian ^a	1412	7.2			
Buddhist	226	1.2	Buddhist	226	1.2
Muslim	192	1.0	Muslim	192	1.0
Other non-Christian ^b	368	1.9			
Refused	44	0.2			
Total^c	19303	0.2			

a - Includes Pentecostal, Jehovah's Witness, Oriental Christian, etc.

b - Includes Hindu, Jewish, etc.

c - does not sum to 100.0 due to rounding

Table III Associations between religion/religiosity and watched X-rated films in the last year and attitude toward sexually explicit films

	Behavior: watched X-rated film/video in last year			Attitude: films these days are too sexually explicit		
	% (95% CI)	OR adjusted	Difference ^a	% (95% CI)	OR adjusted	Difference ^a
Men	(n = 3366)			(n = 3319)		
No religion	43.2 (39.8–46.5)	–		19.4 (16.8–22.3)	–	
Catholic < monthly	44.1 (38.1–50.4)	1.08 (0.80–1.45)	<i>ns</i>	28.6 (23.0–34.9)	1.61 (1.15–2.25)	<i>p</i> = .005
Catholic ≥ monthly	32.0 (23.3–42.2)	0.65 (0.40–1.07)	<i>p</i> = .088	41.4 (31.8–51.6)	2.71 (1.66–4.43)	<i>p</i> < .001
Protestant < monthly	29.5 (24.0–35.5)	0.69 (0.50–0.96)	<i>p</i> = .027	34.1 (27.7–41.2)	1.82 (1.26–2.64)	<i>p</i> = .002
Protestant ≥ monthly	15.4 (8.4–26.5)	0.29 (0.14–0.60)	<i>p</i> = .001	39.3 (25.2–55.5)	2.09 (0.98–4.47)	<i>p</i> = .057
Buddhist < monthly	39.7 (17.2–67.6)	0.65 (0.16–2.62)	<i>ns</i>	16.2 (5.2–40.4)	0.58 (0.11–3.10)	<i>ns</i>
Buddhist ≥ monthly	47.6 (20.8–75.8)	0.88 (0.22–3.60)	<i>ns</i>	58.6 (28.2–83.6)	6.25 (1.32–29.60)	<i>p</i> = .021
Muslim < monthly	39.2 (11.5–76.3)	0.65 (0.13–3.28)	<i>ns</i>	46.8 (15.0–81.5)	5.16 (0.97–27.58)	<i>p</i> = .055
Muslim ≥ monthly	23.4 (6.3–58.3)	0.25 (0.06–1.05)	<i>p</i> = .059	37.1 (11.7–72.5)	2.02 (0.44–9.38)	<i>ns</i>
Women	(n = 2725)			(n = 2630)		
No religion	19.2 (16.4–22.4)	–		34.3 (30.7–38.1)	–	
Catholic < monthly	15.2 (11.2–20.2)	0.79 (0.52–1.20)	<i>ns</i>	42.0 (35.6–48.6)	1.47 (1.05–2.06)	<i>p</i> = .027
Catholic ≥ monthly	10.7 (6.2–18.1)	0.55 (0.27–1.11)	<i>p</i> = .093	50.5 (40.0–60.9)	1.85 (1.14–2.99)	<i>p</i> = .013
Protestant < monthly	17.2 (12.5–23.2)	1.02 (0.65–1.59)	<i>ns</i>	52.0 (45.3–58.7)	1.75 (1.25–2.46)	<i>p</i> = .001
Protestant ≥ monthly	13.1 (6.1–26.1)	0.69 (0.28–1.70)	<i>ns</i>	56.6 (41.9–70.2)	2.90 (1.46–5.76)	<i>p</i> = .002
Buddhist < monthly	10.2 (1.5–45.8)	0.61 (0.09–4.27)	<i>ns</i>	18.5 (5.8–45.6)	0.70 (0.25–1.99)	<i>ns</i>
Buddhist ≥ monthly	4.9 (0.8–25.0)	0.28 (0.04–2.05)	<i>ns</i>	44.0 (14.2–79.0)	1.38 (0.26–7.34)	<i>ns</i>
Muslim < monthly	14.5 (3.2–46.8)	1.07 (0.17–6.65)	<i>ns</i>	65.6 (34.1–87.5)	2.91 (0.52–16.22)	<i>ns</i>
Muslim ≥ monthly	37.0 (5.4–85.8)	2.99 (0.36–24.47)	<i>ns</i>	65.5 (17.3–94.5)	3.38 (0.34–34.12)	<i>ns</i>

a - Comparison with “no religion” group

Note - Odds ratios in **bold** are significantly different from the “no religion” group (*p* < .01)

Table IV Associations between religion/religiosity and non-monogamy in the last year and attitudes toward non-monogamy

	Behavior: non-monogamous ^a			Attitude: having an affair is always wrong		
	% (95% CI)	OR adjusted	Difference ^b	% (95% CI)	OR adjusted	Difference ^b
Men	(n = 3566)			(n = 3456)		
No religion	5.0 (4.0–6.1)	–		75.3 (72.4–77.9)	–	
Catholic < monthly	5.4 (3.9–7.3)	1.07 (0.71–1.60)	<i>ns</i>	80.4 (75.7–84.4)	1.36 (0.98–1.89)	<i>p</i> = .067
Catholic ≥ monthly	2.9 (1.5–5.7)	0.65 (0.30–1.39)	<i>ns</i>	83.5 (75.0–90.0)	2.01 (1.13–3.59)	<i>p</i> = .018
Protestant < monthly	3.9 (2.6–5.7)	0.82 (0.51–1.31)	<i>ns</i>	72.1 (65.6–77.9)	1.02 (0.71–1.47)	<i>ns</i>
Protestant ≥ monthly	4.1 (1.7–9.6)	0.94 (0.36–2.44)	<i>ns</i>	91.9 (82.0–96.6)	4.46 (1.77–11.27)	<i>p</i> = .002
Buddhist < monthly	0.6 (0.1–2.4)	0.13 (0.03–0.55)	<i>p</i> < .001	58.9 (28.8–83.5)	0.41 (0.14–1.27)	<i>ns</i>
Buddhist ≥ monthly	0	–	–	58.2 (28.9–82.7)	0.44 (0.09–2.14)	<i>ns</i>
Muslim < monthly	8.6 (1.1–43.7)	1.54 (0.20–11.76)	<i>ns</i>	85.0 (48.2–97.2)	2.00 (0.29–4.06)	<i>ns</i>
Muslim ≥ monthly	0.7 (0.1–5.6)	0.10 (0.01–1.02)	<i>p</i> = .052	42.9 (13.7–78.1)	0.23 (0.05–1.03)	<i>p</i> = .054
Women	(n = 3015)			(n = 2813)		
No religion	3.1 (2.5–3.8)	–		74.5 (71.3–77.5)	–	
Catholic < monthly	2.2 (1.1–4.0)	0.76 (0.39–1.48)	<i>ns</i>	78.0 (72.1–82.9)	1.27 (0.87–1.84)	<i>ns</i>
Catholic ≥ monthly	1.2 (0.5–3.0)	0.49 (0.19–1.24)	<i>ns</i>	86.6 (78.7–91.9)	2.51 (1.37–4.61)	<i>p</i> = .003
Protestant < monthly	2.2 (1.2–4.2)	0.87 (0.42–1.79)	<i>ns</i>	75.7 (69.1–81.2)	1.13 (0.77–1.67)	<i>ns</i>
Protestant ≥ monthly	0.3 (0.1–4.2)	0.09 (0.02–0.40)	<i>p</i> = .001	90.8 (82.1–95.5)	3.73 (1.63–8.55)	<i>p</i> = .002
Buddhist < monthly	1.9 (0.3–10.2)	1.14 (0.17–7.77)	<i>ns</i>	61.1 (24.9–88.1)	0.27 (0.04–2.14)	<i>ns</i>
Buddhist ≥ monthly	0	–	–	96.6 (84.7–99.3)	13.05 (2.42–70.39)	<i>p</i> = .003
Muslim < monthly	0	–	–	97.4 (82.6–99.7)	15.29 (1.80–130.13)	<i>p</i> = .013
Muslim ≥ monthly	0	–	–	64.6 (16.8–94.3)	0.51 (0.06–3.71)	<i>ns</i>

a - In a regular relationship for > 12 months, and had more than one sexual partner in the last 12 months

b - Comparison with “no religion” group

Note - Odds ratios in **bold** are significantly different from the “no religion” group (*p* < .01)

Table V Associations between religion/religiosity and lifetime experience of termination of pregnancy and attitudes toward abortion

	Behavior: had termination of pregnancy			Attitude: abortion is always wrong		
	% (95% CI)	OR adjusted	Difference ^a	% (95% CI)	OR adjusted	Difference ^a
Men	(n = 3467)			(n = 3456)		
No religion	–	–	–	10.4 (8.6–12.6)	–	–
Catholic < monthly	–	–	–	23.6 (18.3–29.9)	2.90 (1.95–4.32)	<i>p</i> < .001
Catholic ≥ monthly	–	–	–	43.1 (33.5–53.2)	7.08 (4.26–11.77)	<i>p</i> < .001
Protestant < monthly	–	–	–	11.3 (7.5–16.7)	1.33 (0.80–2.24)	<i>ns</i>
Protestant ≥ monthly	–	–	–	39.6 (25.4–55.9)	7.27 (3.52–15.04)	<i>p</i> < .001
Buddhist < monthly	–	–	–	16.3 (4.3–45.5)	1.21 (0.28–5.22)	<i>ns</i>
Buddhist ≥ monthly	–	–	–	32.0 (10.5–65.2)	1.80 (0.37–8.74)	<i>ns</i>
Muslim < monthly	–	–	–	54.5 (19.4–85.6)	14.17 (2.21–90.75)	<i>p</i> = .005
Muslim ≥ monthly	–	–	–	49.6 (16.2–83.4)	3.56 (0.52–24.47)	<i>ns</i>
Women	(n = 2018)			(n = 2814)		
No religion	28.3 (24.7–32.3)	–	–	10.0 (7.8–12.8)	–	–
Catholic < monthly	19.5 (14.2–26.0)	0.61 (0.40–0.94)	<i>p</i> = .026	13.7 (9.9–18.5)	1.77 (1.13–2.79)	<i>p</i> = .013
Catholic ≥ monthly	6.7 (3.0–14.3)	0.21 (0.09–0.53)	<i>p</i> = .001	40.9 (31.3–51.3)	9.58 (5.46–16.81)	<i>p</i> < .001
Protestant < monthly	21.8 (16.1–28.9)	0.82 (0.53–1.26)	<i>ns</i>	9.8 (6.7–13.9)	0.98 (0.56–1.69)	<i>ns</i>
Protestant ≥ monthly	10.3 (3.9–24.5)	0.24 (0.07–0.78)	<i>p</i> = .017	31.9 (20.3–46.1)	6.59 (3.08–14.10)	<i>p</i> < .001
Buddhist < monthly	23.3 (6.8–55.9)	0.75 (0.15–3.73)	<i>ns</i>	7.3 (1.9–24.6)	1.03 (0.21–5.11)	<i>ns</i>
Buddhist ≥ monthly	44.2 (9.9–85.1)	1.77 (0.21–15.01)	<i>ns</i>	0.0	–	–
Muslim < monthly	55.0 (20.9–85.0)	4.55 (0.88–23.49)	<i>p</i> = .070	26.0 (8.1–58.5)	3.23 (0.71–14.70)	<i>ns</i>
Muslim ≥ monthly	43.2 (5.7–90.5)	1.49 (0.10–22.60)	<i>ns</i>	46.3 (10.4–86.5)	11.30 (0.42–307.18)	<i>ns</i>

a - Comparison with “no religion” group
 Note - Odds ratios **in bold** are significantly different from the “no religion” group (*p* < .01)

Table VI Associations between religion/religiosity and homosexual experience and attitudes toward homosexuality

	Behavior: has homosexual experience			Attitude: homosexual behavior is always wrong ^a		
	% (95% CI)	OR adjusted	Difference ^b	% (95% CI)	OR adjusted	Difference ^b
Men	(n = 8776)			(n = 3452)		
No religion	7.8 (6.8–8.9)	–		26.9 (24.1–29.9)	–	
Catholic < monthly	4.6 (2.5–6.0)	0.57 (0.41–0.79)	$p = .001$	41.2 (35.1–47.6)	1.97 (1.44–2.69)	$p < .001$
Catholic ≥ monthly	3.5 (1.8–6.6)	0.43 (0.22–0.85)	$p = .015$	48.8 (38.9–58.8)	2.61 (1.61–4.24)	$p < .001$
Protestant < monthly	3.7 (2.6–5.2)	0.43 (0.29–0.64)	$p < .001$	35.1 (28.8–42.1)	1.56 (1.09–2.24)	$p = .016$
Protestant ≥ monthly	4.1 (1.9–8.4)	0.47 (0.21–1.04)	$p = .063$	57.2 (41.3–71.8)	3.91 (2.01–7.62)	$p < .001$
Buddhist < monthly	5.1 (2.3–10.7)	0.75 (0.32–1.77)	ns	12.1 (4.4–29.3)	0.22 (0.06–0.85)	$p = .029$
Buddhist ≥ monthly	3.5 (0.6–17.6)	0.71 (0.11–4.69)	ns	31.6 (10.4–64.8)	0.42 (0.10–1.87)	ns
Muslim < monthly	9.1 (2.0–33.1)	1.13 (0.23–5.42)	ns	50.3 (16.4–84.0)	4.49 (0.89–22.69)	$p = .070$
Muslim ≥ monthly	0	–	–	96.1 (76.5–99.5)	42.79 (5.55–330.14)	$p < .001$
Women	(n = 7953)			(n = 2812)		
No religion	13.7 (12.4–15.1)	–		15.7 (13.0–18.8)	–	
Catholic < monthly	5.3 (4.2–6.7)	0.38 (0.28–0.50)	$p < .001$	20.9 (16.1–26.8)	1.44 (0.94–2.20)	$p = .089$
Catholic ≥ monthly	1.6 (0.8–3.1)	0.12 (0.06–0.39)	$p < .001$	38.0 (28.5–48.6)	3.69 (2.05–6.63)	$p < .001$
Protestant < monthly	3.3 (2.4–4.5)	0.27 (0.19–0.39)	$p < .001$	23.0 (17.6–29.5)	1.37 (0.88–2.13)	$p = .160$
Protestant ≥ monthly	1.7 (0.5–5.0)	0.11 (0.04–0.35)	$p < .001$	45.4 (32.0–59.5)	5.95 (3.03–11.68)	$p < .001$
Buddhist < monthly	9.9 (4.6–20.4)	1.09 (0.44–2.67)	ns	17.5 (5.1–45.4)	1.91 (0.59–6.18)	ns
Buddhist ≥ monthly	10.8 (3.6–28.3)	0.90 (0.27–3.01)	ns	31.1 (7.3–72.0)	2.46 (0.42–14.28)	ns
Muslim < monthly	2.8 (0.4–17.4)	0.29 (0.04–2.19)	ns	31.9 (12.5–60.5)	1.67 (0.38–7.31)	ns
Muslim ≥ monthly	0	–		58.4 (15.5–91.5)	15.72 (1.56–158.76)	$p = .020$

a - Matched to respondent sex, i.e., men's attitudes toward sex between men; women's attitudes toward sex between women
b - Comparison with "no religion" group
Note - Odds ratios in **bold** are significantly different from the "no religion" group ($p < .01$)