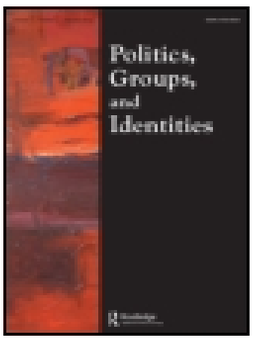

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Social contact with same-sex married couples and support for marriage equality: evidence from Argentina

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ABSTRACT

Personal interaction with lesbians and gays is associated with greater support for lesbian and gay rights, but the effects of contact with married same-sex couples have not been studied. Using original data from Argentina in 2015, we address this gap by measuring the association between direct contact with married gays and lesbians and attitudes toward Same-Sex Marriage (SSM), while controlling for alternative explanations of the association. We also examine how the association between contact and attitudes varies across subpopulations and present evidence to address concerns about causality and robustness to alternative specifications. Contact with married same-sex couples has a normalizing effect on attitudes toward lesbian and gay rights, particularly among some groups that are otherwise less likely to be supportive.

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Contact theory; LGBT rights; public opinion; marriage equality; Argentina

Introduction

Extensive scholarship demonstrates that increased intergroup interaction leads to more positive personal attitudes of the "other" (Allport 1954; Aberbach and Walker 1973; Sigelman and Welch 1993; Tajfel et al. 1971; Yancey 1999). Originally an explanation of racial attitudes in the United States, social contact theory more recently explains attitudes toward gays and lesbians, finding that increased contact with lesbians and gays tends to reduce prejudice toward them (Herek and Capitanio 1996; Smith, Axelton, and Saucier 2009) and to increase support for gay rights (Barth, Marvin Overby, and Huffmon 2009; Lewis and Gossett 2011). Further, most research probes the relationship between intergroup contact and tolerance of same-sex intimacy in general, not Same-Sex Marriage (SSM), with few exceptions (Merino 2013; Lee and Mutz 2019). Studies in the US that examine the impact of social contact on social attitudes toward SSM focus on contact with a gay or lesbian individual (Lee and Mutz 2019) or gay couples (Barth and Parry 2009) but not *married* same-sex couples. Most of this work, based on the US experience, provides little insight about social dynamics elsewhere. Furthermore, tolerance differs

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from expressing support for equality; support for same-sex civil unions may exceed support for SSM (Lewis and Gossett 2011, 231).

To our knowledge, ours is the first study to fill these gaps. Argentina legalized SSM in 2010, and since then, thousands of Argentines have entered SSMs, providing an opportunity to compare the impact of social contact with someone who identifies as gay or lesbian to contact with a SSM. We designed and analyzed a module on SSM in the first-wave of the 2015 Argentine Panel Election Study (APES), a nationally, representative survey of Argentines in June 2015. We also analyzed how intergroup dynamics vary across demographic groups, confirming that contact matters. In Argentina, contact with an acquaintance, family member or friend who identifies as gay or lesbian is significantly associated with higher levels of SSM support, but such support is even higher among those who have interacted with someone in a SSM, consistent with a "normalizing effect" in which contact with someone gay or lesbian in a historically heteronormative and "normal" family arrangement has a significant effect on attitudes toward LGB rights. Our results are robust across a range of specification and estimation approaches, including analyses that address the potential endogeneity of contact and spuriousness due to post-material value changes. We also demonstrate that the normalizing effect of SSM social contact varies by subpopulation, finding that this effect tends to be larger among subpopulations who encounter SSMs in social contexts where SSM support tends to be lower.

Theoretical debates

Prompted by racial tensions in the US, Gordon Allport (1954) advanced the idea that hostility is a generalized human reaction to difference. Allport argued that group prejudices developed through children's exposure to their parents' social and class preferences and that a child's identity while growing up developed into group membership and loyalty. Importantly, Allport suggested that unlike general negative beliefs, prejudice is based on inaccurate beliefs due to generalizations from limited observations and that prejudice persists in defiance of contradictory information. Prejudice, however, can be reduced through intergroup interaction when four key conditions were met: equal group status, common goals, intergroup cooperation and the support of the law. Subsequent studies corroborate his findings (Tajfel et al. 1971; Tajfel and Turner 1979; Wilder 1981) and find that under certain conditions, increased contact with members of the prejudiced group can reduce prejudice (Ellison and Powers 1994; Hanssen 2001; Pettigrew and Martin 1986; Sigelman and Welch 1993; Yancey 1999). While most of this research looks at racial attitudes, scholars also find that a general association between increased exposure and personal contact with lesbians and gays and lower negative prejudices toward them (Smith, Axelton, and Saucier 2009) and increased support for LGB rights in the US (Barth, Marvin Overby, and Huffmon 2009; Barth and Parry 2009; Becker 2012; Bramlett 2010; Lewis and Gossett 2008; Pettigrew and Tropp 2006; Skipworth, Garner, and Dettrey 2010).

We extend lessons from the US about intergroup contact and attitudes toward SSM to Latin America, a region of the Global South with significant expansion of sexual rights and where 80% of Latin Americans live in countries with SSM rights. Existing literature examines the effects of social contact on *tolerance* toward LGB people, not support for the right to marry and not yet the effects of contact with someone already in an SSM. Barth and Parry (2009) examine differences between contact with individual gays or lesbians and

contact with same-sex couples, finding that the latter type of contact is associated with greater support for legal recognition of same-sex relationships than the former (see table 4, page 43). We build on this study and address its limitations by examining the relationship between contact with legally *married* same-sex couples and support for SSM in a nationally representative sample in Argentina, where elected officials legalized SSM in 2010.[1]

Alternatively, enacted legislation or court rulings may influence people's perceptions of policy issues. Work in the US, for example, has found that the SSM enactment at the subnational level is associated with less negative attitudes toward LGB individuals (Ofosu et al. 2019; see also Flores and Barclay 2016). Similar work on European attitudes finds that SSM enactment is associated with more positive attitudes toward lesbians and gays (Abou-Chadi and Finnigan 2018; Aksoy et al. 2018). These studies do not directly measure individual-level contact with married same-sex couples, but rather make ecological inferences by measuring aggregate changes in attitudes in jurisdictions where SSM has been legalized. In Argentina, the available evidence does not suggest that legalization alone dramatically increased overall levels of support for SSM. In 2010, when SSM was being publicly debated in Congress, approximately 60% of the population supported the right of same-sex couples to marry (Latin American Public Opinion Project (LAPOP) 2010). Over the next 4 years, the level of support for SSM remained substantively and statistically similar, with about 55% support in 2012 and 59% in 2014 (LAPOP 2012, 2014). This pattern does not suggest a shift in attitudes due to policy change. Unlike other studies relying on ecological inferences to measure the influence of policy change, we directly measure *both* individual-level contact with same-sex married couples and familiarity with SSM legalization in Argentina to disentangle the effects of normalization through policy change versus social contact with SSM.

Though we would theoretically expect similar social contact dynamics to play out wherever SSM is legalized, Argentina is an ideal case to test these dynamics, not only because of its size and regional importance, but because it was one of the earliest countries to have adopted SSM through national legislation. Some estimates suggest that approximately 12,500 same-sex couples exercised their right to marry from 2010 until 2015 (Iglesias 2015), making it possible to gauge whether social contact with someone in SSM influences attitudes. We answer our main research question – whether there is a stronger association between support for SSM and knowing someone who is in an SSM than simply knowing someone who identifies as lesbian or gay – using a special module about SSM that we contributed to the 2015 APES. In June 2015, during the first wave of the APES, approximately 20% of Argentines reported knowing someone who identified as "homosexual" among their family members, neighbors, co-workers, or friends, including those who said they did not know (but excluding those who refused to answer the question). Of those that said they knew a gay man or lesbian, approximately 18.7% said they knew someone in an SSM.

We test two main hypotheses related to social contact with gays and lesbians and support for SSM rights. First, to extend what we already know from research in the US, we examine our first hypothesis (**H1**):

> H1: *Having acquaintances, friends, or family who identify as lesbian or gay is associated with greater support for SSM.*

Second, we analyze the relationship that exists between knowing lesbians and gays who have entered a SSM and support for SSM. We hypothesize that the normalizing effect of contact with someone who is already in a SSM and that support for gay rights will be *larger* than that of contact with lesbians or gays in general because knowing an individual who has concretely entered SSM is more affirming of marriage equality than knowing a gay man or a lesbian who could get married in abstract terms. Our second hypothesis (**H2)**, therefore, is:

> H2: *Having acquaintances, friends, or family who are in a SSM is associated with greater support for SSM than contact with lesbian or gay people in general.*

For both of these hypotheses, we are also interested in how intergroup contact may affect support for SSM differently across demographic groups. The relationship between intergroup exposure and positive social attitudes varies by social context, which shapes the type of contact that develop (Wright et al. 1997). The duration of intergroup contact matters, and the more sustained the interaction, the more likely people are to develop acquaintances and friendships, increasing the chances for "learning about the outgroup, changing behavior, generating affective ties, and intergroup reappraisal" (Pettigrew and Tropp 2006, 80). However, previous research in the US also shows that social context can erode support for SSM rights, even if someone has contact with lesbians or gays. For example, the correlation between contact with lesbians and gays and support for SSM is weaker when people are conservative, Evangelical Christians, or live in conservative regions (Skipworth, Garner, and Dettrey 2010) or have more religiously conservative people in their networks (Merino 2013). This suggests that the effects of social contact on support for SSM vary across subpopulations. Based on these insights, we propose our third hypothesis (**H3**):

> H3: *The positive association between* social contact with lesbians or gays *and support for SSM will be significantly* weaker *among subpopulations that otherwise express less support for SSM.*

SSM is historically a traditional heterosexual institution, and it is therefore likely that, contrary to H3, contact with a SSM may have a stronger normalizing effect as a model of same-sex coupledom that mirror heterosexual norms, override social context, and produce higher likelihoods of supporting SSM rights. In other words, if knowing a same-sex couple has stronger positive effects on support for LBG rights than knowing single LGBs (Barth and Parry 2009), than knowing a *married* same-sex couple is likely to have even stronger positive effects on attitudes, leading to our fourth hypothesis (**H4**):

> H4*: The positive association between* social contact with lesbians or gays in a same-sex marriage *and support for SSM will be significantly* stronger *among subpopulations that otherwise express less support for SSM.*

Robust findings in the literature identify the relevant subpopulations for testing these hypotheses. For example, in the US, younger generations are consistently more supportive of SSM than older generations (Brewer 2003b; Baunach 2011, 2012; Becker 2012). Women are also generally more supportive of SSM perhaps because they are more likely to empathize with discrimination or less likely to feel their social status threatened by lesbians and gays (Wilkinson 2006; see also Sherkat et al. 2011, 175). Religious people tend to express less support for SSM, and those who identify as Catholic or one of

several conservative Christian denominations (Evangelical, Church of Latter-Day Saints, or Jehovah's Witness) also tend to express less support for SSM than those with other religious affiliations (Olson, Cadge, and Harrison 2006, 346; Andersen and Fetner 2008; Adamczyk and Pitt 2009; Sherkat et al. 2011, 174; Akker, van der Ploeg, and Scheepers 2013, 70–71). Finally, those who live in urban areas are more likely to support LGB rights because they are more likely, due to sheer population density, to have met someone who is LGB, thereby changing their attitude (Stephan and McMullin 1982; Flores 2014; Wilcox and Norrander 2002).

Data and indicators: the 2015 Argentina Panel Election Study

To test these hypotheses, we developed a special module on SSM for the first wave between June 24 and August 7 of the 2015 APES, which included a nationally representative sample of face-to-face interviews with 1,149 adults living in cities of 10,000 inhabitants or more and with purposive and convenience sampling of 18 cities or towns and quotas for gender and age.[2] Our dependent variable is support for SSM measured with a question asking respondents the extent to which they agree that same-sex couples should have the right to marry (*casarse* in Spanish). Responses range from one (strongly disagree), to three (neither agree or disagree), and to five (strongly agree). Responses to this question are not normally distributed (Shapiro–Wilk $z = 6.233$, $p = 0.000$, null hypothesis is that indicator is normally distributed), with attitudes polarized at the two extremes: strongly disagree (28.5%) and strongly agree (36.6%). We therefore recode the outcome of interest into three ordered categories, those who agree or strongly agree as supporting SSM (52.3%), those who neither agree nor disagree (12.7%), and those with any disagree response as not supporting SSM (35.0%).[3] In recent national surveys that do not include a "neither" option, 59.0% (2014) and 65.3% (2016) of respondents expressed support for the right to SSM (LAPOP 2014, 2016).

Our primary independent variables of interest are personal contact with someone who identifies as lesbian or gay, including those in a SSM, and political knowledge of the legalization of SSM. Table 1 presents cross-tabulations of support for SSM with our primary measures of contact and policy knowledge. Near the survey's end and after answering attitude questions, respondents were asked if among their family members, neighbors, coworkers, or friends, any are "homosexual." Those responding yes were then asked

Table 1. Distribution of support for SSM and contact in Argentina.

	Support for right to SSM					
	Strongly disagree	Disagree	Neither	Agree	Strongly agree	Total
Contact						
No/unknown contact	31.76%	7.27%	14.00%	15.31%	31.66%	100.0%
Contact but no or uncertain SSM	17.77%	3.97%	7.36%	20.26%	50.64%	100.0%
Yes contact & with SSM	5.14%	2.07%	7.34%	4.29%	81.16%	100.0%
Total	28.49%	6.54%	12.67%	15.70%	36.59%	100.0%
Uncorrected $\chi^2 = 71.4018$ (df = 8), corrected $F = 9.167$ (7.96, 8545.68), and $p = 0.000$						
SSM legalization knowledge						
Incorrect year/no answer	29.12%	6.86%	12.39%	16.82%	34.80%	100.0%
Correct year	26.01%	5.26%	13.80%	11.25%	43.69%	100.0%
Total	28.49%	6.54%	12.67%	15.70%	36.59%	100.0%
Uncorrected $\chi^2 = 8.834$ (df = 4), corrected $F = 2.200$ (4.00, 4290.70), and $p = 0.067$						

Source: Authors' calculations based on APES (2015).

whether they know anyone who is part of a SSM. Those who refused to answer were excluded, while those who answered "don't know" were coded as not knowing someone who identified as lesbian or gay or who was part of a SSM. Consequently, respondents are grouped into three categories of contact: those who report not knowing or that they "don't know" someone who is gay or lesbian; those who know someone who is gay or lesbian but "don't know" or report not knowing if any are in a SSM; and those who know someone who is in a SSM. Because we code volunteered "don't know" responses to the lower level of contact, we potentially underestimate, rather than overestimate contact, making our estimates more conservative. Social contact and support for SSM are statistically associated (uncorrected $\chi^2 = 71.4018$ with 8 df, corrected $F = 9.167$ with 7.96 and 8545.68 df, and $p = 0.000$), with significantly higher rates of support among those who know a gay man or lesbian or a same-sex married couple. To isolate as much as possible the relationship between social contact and SSM from the potential effect the enactment of SSM on overall aggregate attitudes, we measured respondents' familiarity with the SSM legalization in Argentina by asking respondents to report the year in which SSM was legalized, with options including 2007, 2010 (correct), 2012, and 2014. Respondents who volunteered "don't know" (325 respondents) or "no answer" (4 respondents) were coded with those who chose incorrect answers. If SSM enactment has a direct effect on attitudes, knowing when the policy change occurred is a control for the policy change effect. Overall, 28.7% of Argentines knew when the national government legalized SSM. Unlike social contact, SSM legalization knowledge is not significantly associated with higher levels of support (uncorrected $\chi^2 = 8.834$ with 4 df, corrected $F = 2.200$ with 4.00 and 4290.70 df, and $p = 0.067$).

In our multivariate analyses, we control for alternative explanations, and descriptive statistics for the estimation sample are in the Supplemental Information. To isolate the effect of SSM legalization knowledge and not just political knowledge in general, we include a three-item additive index of political knowledge items that asked respondents to correctly identify the current Economic Minister, the current President of Brazil, and that the Civil Code (as opposed to Penal Code, Constitution, or Electoral System) had been reformed in the last four years. This measure ranges from zero for those who answered all questions either incorrectly or "don't know" to three for those who answered all questions correctly. We also control for whether a respondent reports discussing politics with anyone in the past year (55% of total) and for respondent level of education, which is often correlated not only with SSM attitudes in Latin America (Díez and Dion 2018; Dion and Díez 2017) but also political knowledge and discussion.

Religion is collapsed into four categories: Catholic (reference category, 71%), Evangelical Christian (15%), other religions (2%), and non-religious (12%). Evangelical Christians are expected to be the most opposed to SSM. Those with a religious affiliation were asked the frequency of their attendance at religious services, which captures religiosity, and should be associated with lower likelihood of supporting SSM. Religiosity includes those who are: not religious (zero, 12%), religious but never attend services (one, 32%), attend once a year (two, 15%), attend several times a year (three, 10%), attend at least monthly (four, 15%), and attend at least weekly (five, 17%).

We also include controls for several demographic characteristics correlated with tolerance and support for LGB rights. Female respondents, who are more likely to support SSM than men, are captured with a dummy variable (52% of sample).[4] Age is coded into six

categories, ranging from under 25 (one), 25–34, 35–44, 45–54, 55–64, and 65 and over (six), with the expectation that older respondents are less likely to support SSM. Residents of the Buenos Aires Metropolitan Area (about 41% of the sample) are expected to be more likely to support SSM than those who live in smaller cities in part because same-sex civil unions were legalized in 2002 in Buenos Aires, eight years before national recognition in 2010. Current relationship status is a dichotomous indicator for those in a legal partnership (traditional marriage, SSM, or civil partnership in Buenos Aires, 33%) and those who are either single, in an informal partnership, divorced, separated, or widowed (67.1%). Those who have traveled abroad may also be more likely to support SSM and are indicated with a dummy for foreign travel (9.4%). Finally, we include a set of dummies to control for randomly assigned variations in SSM support question wording.

Main estimation and results

Given the non-normal distribution of support for SSM, we estimate multivariate ordinal logistic regression model of support for SSM with probability sampling weights clustered by city, the first stage of the sampling design (see 2015 Argentine Panel Election Study Sample Design n.d.). We focus on these model estimates (see Table 2), though we also reference additional evidence in the Supplemental Information, where relevant. In all the models, personal contact with lesbian and gay individuals and with those in SSMs is statistically significantly associated with higher rates of support for SSM, even when controlling for SSM policy knowledge (column 2), other types of political knowledge and discussion (column 3), religion (column 3), and demographic characteristics (column 4). In the model with the full complement of alternative and control variables (column 4), respondents who report personal contact with lesbians or gays have twice the odds of supporting SSM than those who report no contact, consistent with the first hypothesis (column 5). Central to our study, respondents who know someone in a SSM are four times as likely to support SSM than those who do not know any lesbians or gays (column 5), consistent with our second hypothesis.

In contrast, people who were familiar with the adoption of the SSM law were not significantly more likely to express higher levels of support than those who were not familiar with the law (column 2), and the results are similar whether we control for other types of political knowledge or political discussion (columns 3 and 4), suggesting that familiarity with the legalization of SSM is distinct from both social contact, political knowledge in general, and political discussion, and not a strong predictor of SSM support. In other words, the impact of legalization itself on attitudes toward SSM is, in Argentina, minimal. These results provide evidence that personal contact is more strongly associated with SSM support than familiarity with the law or general political knowledge or discussion.

Figure 1 plots the predicted probabilities of supporting SSM by levels of personal contact, illustrating our first two hypotheses. The predicted probability that an Argentine with no contact will support SSM is 0.49, and this increases to 0.64 for those with gay man or lesbian contact but no (or unknown) contact with a same-sex married couple. The predicted probability of support is highest (Pr = 0.76) among those who report knowing a SSM couple. The figure also illustrates how contact reduces the probability that an Argentine will express no opinion (choosing the "neither" response option) or oppose SSM. The

Table 2. Ordered logistic regression estimates of SSM support in Argentina, 2015.

	(1) b / (se)	(2) b / (se)	(3) b / (se)	(4) b / (se)	(5) odds ratios
LGB contact	0.968***	0.959***	0.970***	0.737***	2.090
	(0.179)	(0.179)	(0.192)	(0.201)	
SSM contact	1.897***	1.889***	1.950***	1.479**	4.388
	(0.436)	(0.436)	(0.460)	(0.480)	
SSM knowledge		0.099	−0.042	−0.047	0.954
		(0.142)	(0.154)	(0.165)	
PK index			0.170**	0.134	1.144
			(0.062)	(0.071)	
Discuss politics			0.501***	0.477***	1.611
			(0.130)	(0.144)	
Evangelical			−0.902***	−0.994***	0.370
			(0.198)	(0.212)	
Other religion			−1.272**	−1.164**	0.312
			(0.411)	(0.442)	
Not religious			−0.104	0.012	1.012
			(0.234)	(0.251)	
Religiosity (0-5)			−0.259***	−0.251***	0.778
			(0.045)	(0.051)	
Female				0.572***	1.772
				(0.153)	
Employed				0.044	1.045
				(0.247)	
Looking for work				0.074	1.077
				(0.332)	
Student				0.454	1.574
				(0.363)	
Homemaker				0.260	1.296
				(0.275)	
Age = 26–35				−0.430	0.650
				(0.229)	
Age = 36–45				−0.233	0.792
				(0.261)	
Age = 46–55				−0.556	0.574
				(0.294)	
Age = 56–65				−0.857**	0.425
				(0.284)	
Age >65				−0.916**	0.400
				(0.340)	
Secondary education				0.406*	1.500
				(0.171)	
Tertiary education				0.515*	1.674
				(0.224)	
Legal partnership				−0.056	0.946
				(0.156)	
Buenos Aires				0.739***	2.093
				(0.147)	
Foreign travel				0.532*	1.703
				(0.243)	
Religious frame				−0.253	0.776
				(0.182)	
Human rights frame				0.310	1.363
				(0.185)	
Both frames				−0.179	0.836
				(0.182)	
Constant cut1	−0.435***	−0.417***	−0.761***	−0.358	0.699
	(0.065)	(0.070)	(0.161)	(0.381)	
Constant cut2	0.105	0.124	−0.143	0.334	1.396
	(0.063)	(0.068)	(0.160)	(0.380)	
Observations	1135	1135	1106	1091	
F	22.95***	15.55***	17.49***	8.615***	

Standard errors in parentheses. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

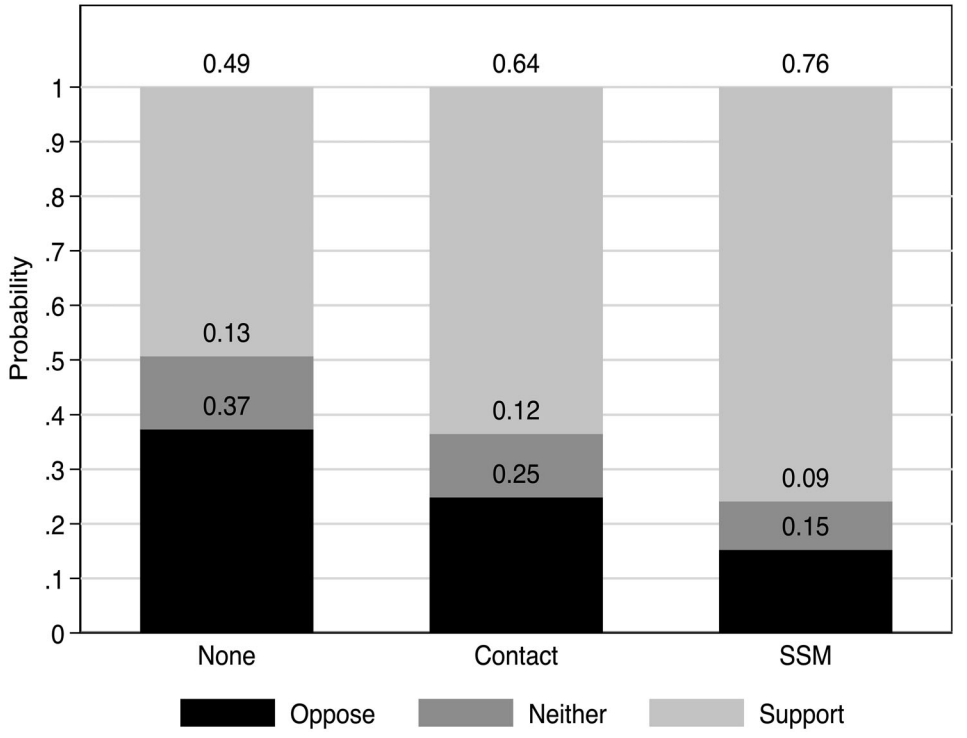

Figure 1. Probabilities of SSM support by levels of personal contact in Argentina, 2015. Source: Based on results in Table 2, column 4.

probability that someone will oppose SSM is cut by more than half (from 0.37to 0.15) if someone knows a same-sex married couple.[5]

Our results also confirm that explanations of SSM support from elsewhere also hold in Argentina, and Figure 2 presents the odds ratios (with 95% confidence intervals) from the full multivariate ordered logistic regression model (Table 2, column 5). Evangelicals and those with other religious affiliations are significantly less likely, or have about 63% lower odds, than Catholics (the reference category) or non-religious individuals to support SSM. Religiosity was also negatively and statistically associated with a lower probability of SSM support, or about 22% lower odds of support for each increase in religiosity. Older generations generally are less likely to support SSM, particularly those over 55. In contrast, women and those living in Buenos Aires are significantly more likely to support SSM. In addition, those with higher education and those who have traveled abroad in the last year are more likely to support SSM. There was no significant difference in SSM support by partnership status, employment status, or question wording.

Assessing causal claims

One of our claims is that we are better able to isolate the relative effects of contact with LBG peoples or same-sex married couples compared to previous studies because we directly measure both contact and familiarity with the legalization of SSM. However, ours is not an experimental design, nor would one be feasible because we cannot

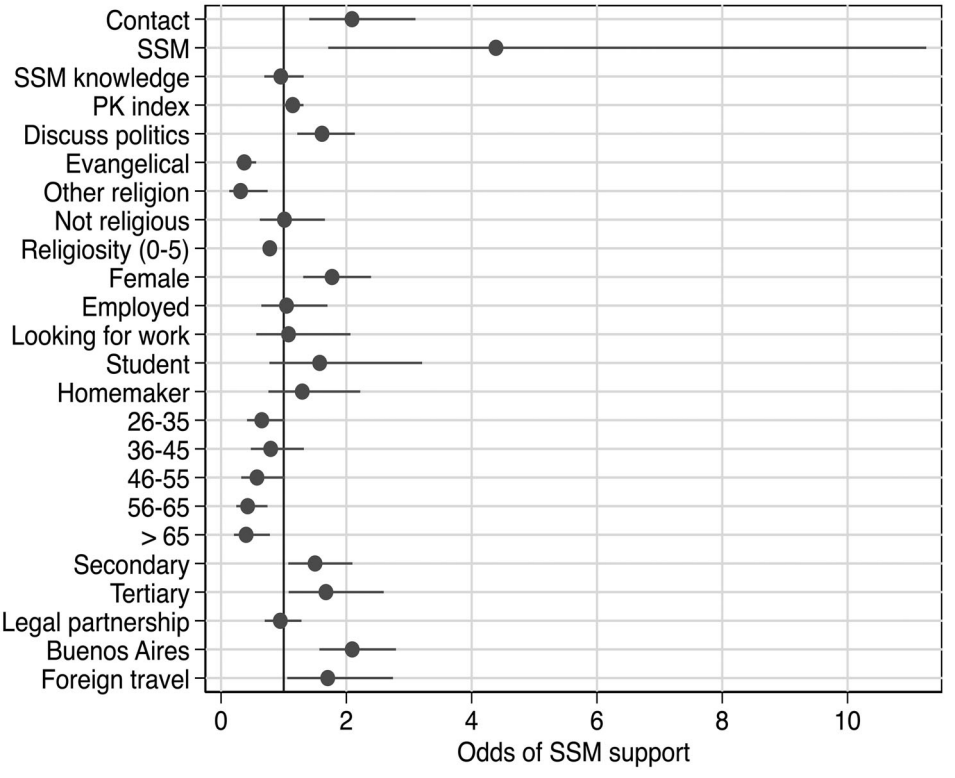

Figure 2. Odds ratios (with 95% confidence intervals) of SSM in Argentina, 2015. Source: Based on results in Table 2, column 4, where contact is a nominal indicator with three categories.

realistically assign the treatment of SSM contact to study participants. Treating participants by introducing them to same-sex married couples would have limited external validity due to the artificial nature of the treatment. Therefore, we present two analyses to support our claims that our results are due to contact changing attitudes and increasing the likelihood that someone supports LGB rights.

First, we estimate two Average Treatment Effect (ATE) models. These models are based on the intuition that once the appropriate controls are included, the "treatment" can be assumed to be exogenous (the ignorability assumption, Wooldridge 2010, 904–910). Both models assume the treatment (social contact) and outcomes (attitudes) are both dichotomous, using a probit estimation. In the first model, we use a dichotomous measure of support for SSM that combines "neither" responses with support, which results in an overall rate of support similar to that in other recent, similar surveys in Argentina. In the second model, support for SSM is measured using a dichotomous indicator, excluding respondents who chose "neither." In both models, contact is a dichotomous measure for any personal contact with lesbians or gays, regardless of their marital status. In the equations for contact, we include religious affiliation, religiosity, female, living in Buenos Aires, and age. In the equations for SSM, we include those covariates plus knowledge of SSM, the political knowledge index, political discussion, marital status, and foreign travel. We also include sampling weights and cluster the errors by city.

In both estimations, the overlap assumption (Wooldridge 2010, 916) is met because the predicted probabilities that treated (control) individuals are in the control (treatment) group do not include zero or one. In the first estimation, the predicted probabilities (or propensity score) for being in the control group for treated individuals ranges from 0.749 to 0.985, and the predicted probabilities (or propensity score) for being in the treatment group for control group individuals ranges from 0.012 to 0.251. In the second estimation, the ranges are 0.757 to 0.982 and 0.014 to 0.243 respectively. Furthermore, after estimating the models, Wald χ^2 tests of endogeneity, in which the null hypothesis is that unobserved variables for the treatment and outcome are uncorrelated, indicate that contact is not endogenous. In the first model, $\chi^2 = 0.020$ (df = 2, $p = 0.991$), and in the second model, $\chi^2 = 0.600$ (df = 2, $p = 0.741$). The results of these tests suggest that our controls for alternative explanations of contact and SSM meet the assumption of ignorability, which occurs when the included covariates sufficiently explain the treatment, in our case social contact, such that the treatment effects can be interpreted as exogenous (see Wooldridge 2010, 901–910). Together, the results of these alternative estimates suggest that our full model includes sufficient covariates of contact and SSM to enable us to interpret the coefficients for contact as if they were exogenous treatment effects.[6]

Second, following the example of Abou-Chadi and Finnigan (2018), we also estimate the same primary models with another outcome to show that our results are specific to lesbian, gay, or SSM contact and support for SSM, rather than a reflection of post-material values in general. Previous research has consistently demonstrated that tolerance of same-sex intimacy and support for SSM rights are reflections of post-materialist values and outcomes related to social modernization (e.g., Adamczyk and Pitt 2009; Andersen and Fetner 2008; Díez and Dion 2018). Similarly, support for liberalization of abortion rights has consistently been understood to be an outcome related to post-materialism (e.g., Inglehart and Appel 1989; Nevitte, Brandon, and Davis 1993; Asal, Brown, and Figueroa 2008). In our survey, the five-point indicators of support for SSM rights and abortion rights are positively associated, though the association is not particularly strong (uncorrected $\chi^2 = 182.640$ with 16 df, corrected $F = 11.207$ with 15.99 and 17012.86 df, and $p = 0.000$, see Supplemental Information). By estimating our models with support for abortion rights as the outcome, rather than SSM, we are able to provide additional evidence that contact is not likely to be endogenous (i.e., that people who support SSM rights are more likely to seek out LGB or SSM contact or that LGB people are more likely to disclose their orientation or SSM to people who express SSM support) as well as that lesbian or gay contact and SSM contact has specific associations with support for SSM rather than just any type of post-material values or attitudes.

In this analysis, we substitute as the dependent variable a question that asks respondents the extent to which they agree that "Abortion should be legal" on a scale from strongly disagree (1) to strongly agree (5). Like SSM support, abortion rights support tends to be polarized, non-normal (Shapiro–Wilk test for normality = 5.195, $p = 0.000$, null hypothesis is that indicator is normally distributed), with a weighted mean of 2.82. Like SSM, we recode abortion rights support into an ordinal indicator of oppose, neither, and support and use the same estimation method and covariates as those in Table 2 (column 4). We also repeat the additional estimations to demonstrate, and LGB/SSM social contact is never significantly associated with the probability of supporting abortion rights (see Supplemental Information). Familiarity with SSM legalization is also

not significantly associated with abortion attitudes. Meanwhile, other covariates have the expected sign and significance, including political discussion, religiosity, age, residing in Buenos Aires, and recent foreign travel, suggesting the model is reasonable for explaining abortion rights support. The absence of a relationship between LGB/SSM contact and support for abortion rights bolsters our causal claims that contact with lesbian or gay people or married couples increases the likelihood of supporting SSM rights.

Together, this evidence shows that contact is not likely to be endogenous to attitudes regarding SSM rights and that the association between contact and SSM support is not driven by spuriousness due to underlying unmeasured post-material values. The consistent and robust findings that social contact is associated with higher levels of support for SSM across different specifications of contact and different estimation methods (see Supplemental Information) provide considerable support for our primary research hypotheses that social contact, not just with lesbians or gays but also with married lesbian and gay couples is a significant factor in normalizing and promoting support for SSM.

Heterogeneity of contact effects across subpopulations

Here we turn to our third and fourth hypotheses related to variations in the association between social contact with lesbians or gay men or contact with SSM and SSM support across subpopulations. The literature and our primary results indicate five subpopulations are less likely to support SSM rights: Evangelical Christians, those who self-identify as more religious, men, older generations, and those who live outside the largest (and capital) city. We hypothesize that social contact with *lesbians or gay men* would be weakly associated with SSM support among these demographic groups (H3), while knowing a *same-sex married couple* would be strongly associated with more SSM support due to the strong normalizing effect of lesbians and gays entering the heteronormative institution of marriage (H4). We estimated five ordered logistic regression models with interactions between contact and these correlates of SSM support, which allows the relationship between contact and SSM support to vary conditionally by these characteristics in each model, while also controlling for the covariates included in Table 2 (column 4).[7] Figure 3 illustrates the predicted probabilities of supporting SSM according to levels of contact when contact is interacted with indicators for these five subpopulations; the predicted probabilities and complete model estimates are available in the Supplemental Information. These results provide some preliminary support for our expectations.

First, with regard to religious identity, the figure shows that among Catholics, contact with lesbians or gays and with a same-sex married couple incrementally increases the probability that Catholics support SSM. In contrast, among those who claim no religious affiliation or another religious affiliation, the predicted probability of supporting SSM is statistically similar between those who know someone who identifies as LGB and those who know someone in a SSM. Conversely, the pattern for Evangelical Christians also differs. Knowing someone who identifies as lesbian or gay has little effect on SSM support, but, in contrast, knowing someone in a SSM coincides with a higher probability of expressing support for SSM. Though consistent with hypotheses H3 and H4, the 95% prediction intervals for Evangelicals who know someone in a SSM are quite wide due to our sample size. Second, we consider the interaction between level of religiosity with LGB or SSM contact, finding that the interaction between religious service attendance

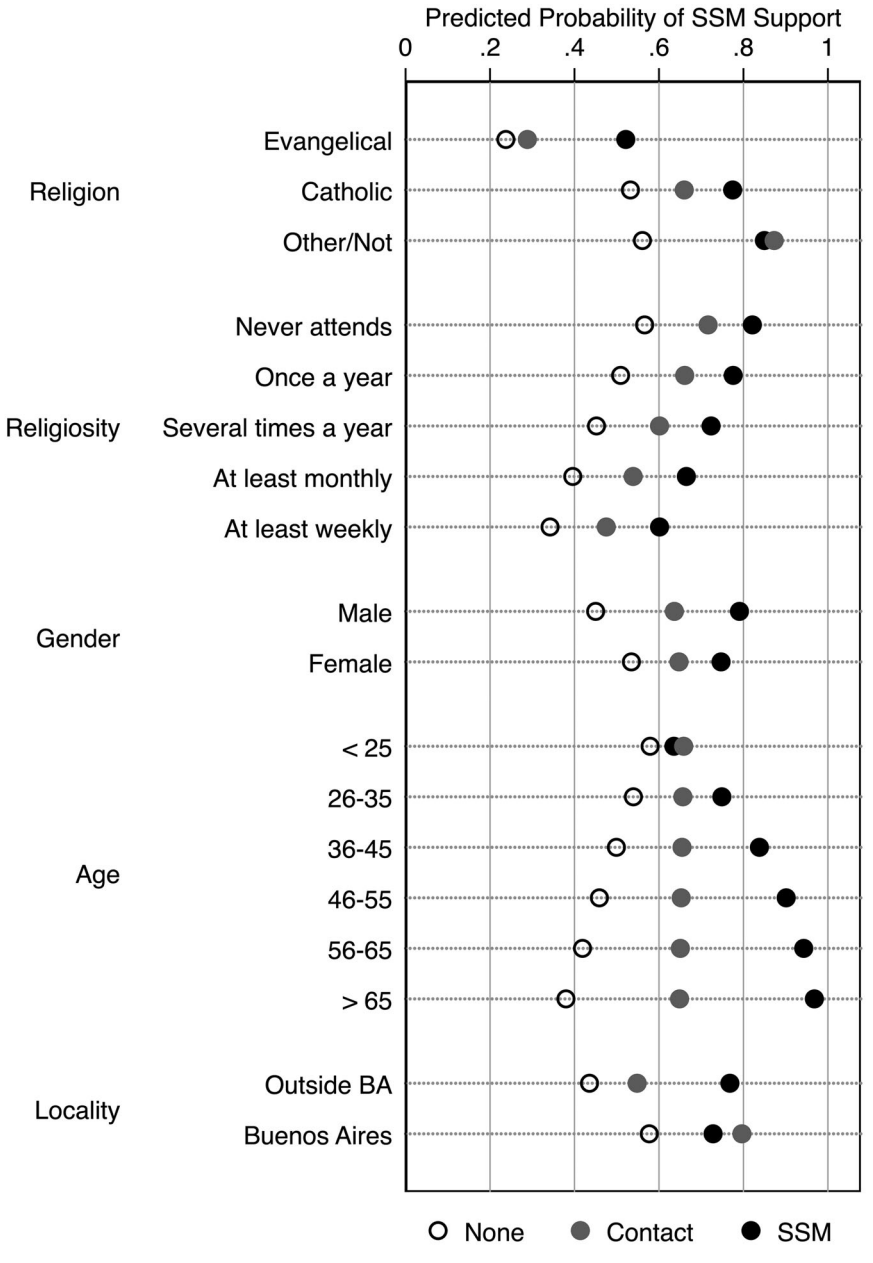

Figure 3. Predicted probability of SSM support by contact and subpopulation in Argentina, 2015. Source: Based on results in Supplemental Information.

and contact is not statistically significant, illustrated by the similar slopes for religiosity for all types of contact in the figure. Instead, religiosity has a consistent and statistically significant negative association with likelihood of supporting SSM, while contact mostly shifts the overall probability of opposing (downward) or supporting (upward) SSM.

Third, we consider the conditional association of personal contact by gender. Given the limitations of our sample size, we treat contact as a continuous predictor, rather than

categorial. Women are more likely to express support for SSM compared to men, while social contact is associated with a larger increase in the probability of expressing SSM support among men, which is consistent with our theoretical expectations. Men tend to express lower support for SSM compared to women when they have no social contact with lesbians or gay men, and social contact with LGB people or SSM has a stronger positive association with support for SSM among men compared to women.

Fourth, we also hypothesized that though in general older generations would be less likely to support SSM, personal contact with SSM would have a particularly strong normalizing effect among older generations. In Figure 3, age is negatively associated with SSM support when people have no LGB or SSM contact, but a positive association when people know someone in a SSM. These relationships are consistent with our third and fourth hypotheses, though the interaction term itself is not statistically significant. For example, when Argentines under 35 have any social contact with lesbians or gays, they have an average 0.08 (those under 25) or 0.12 (26–35) higher probability of SSM support compared to their peers with no contact. In comparison, among those aged 56–65 and over 65, any social contact increases the predicted probability of supporting SSM by 0.24 and 0.27 respectively. At the same time, contact with a same-sex married couple tends to have even larger associations with SSM support compared to other types of social contact among older Argentines, consistent with H4. Those under 25 actually have a 0.03 lower probability of SSM support when they know a SSM couple (Pr = 0.64) compared to those non-married LGB contact (Pr = 0.66). Among those aged 26-35, the difference between the predicted probability of SSM support for those with any contact (Pr = 0.66) and those with contact with a married couple (Pr = 0.75) is about 0.09. By comparison, the same differences for those aged 56–65 and over 65 are 0.29 and 0.32 each. Overall, contact has a stronger association with SSM support at among those at higher ages.

Finally, we hypothesized that contact with SSMs would be associated with a significantly higher probability of supporting SSM in areas outside of Buenos Aires than within the capital metropolitan area because same-sex unions were legalized first in Buenos Aires in 2002. Elsewhere, contact with same-sex married couples may have a stronger normalizing association with SSM support. The results in Figure 3 suggest that in provincial regions, contact with same-sex married couples is associated with a higher probability of supporting SSM (Pr = 0.77) than just contact with lesbians or gays (Pr = 0.55). In contrast, Buenos Aires residents are equally likely to support SSM regardless of their type of contact (Pr = 0.80 for any contact, Pr = 0.73 for SSM contact with overlapping 95% prediction intervals). Those with no known contact with LGB people in Buenos Aires have a 0.58 probability of supporting SSM, which is substantively and statistically equal to the probability of those in provincial cities who have such contacts (Pr = 0.55). Overall, these results suggest that SSM contact has a stronger association with SSM support outside Buenos Aires, consistent with our expectations.

Together, these results support our hypotheses that contact with same-sex married couples produces a stronger normalizing effect on SSM support compared to other types of social contact with lesbians and gays among groups normally less likely to support LGB rights. In our analyses of conditional relationships between different types of social contact and religious affiliation, religiosity, and residency, we find support for hypotheses three and four. In these results, the differences between the predicted probabilities of SSM support for those with any social contact compared to no contact are relatively

smaller among less supportive demographics (e.g., Evangelicals, more religious, outside Buenos Aires), consistent with our third hypothesis. With age, any type of contact tends to strengthen the probability of supporting SSM, though overall age is less important than contact. Across all the results, not only is any contact associated with higher probabilities of SSM support, but we observe consistent patterns whereby reporting contact with a same-sex married couple is associated with higher probabilities of expressing SSM support, as proposed by hypothesis four.

Conclusion

Social contact theory research to explain intergroup hostility and its reduction consistently demonstrates an association between increased personal contact with groups that have been "othered" and lower levels of prejudicial attitudes toward them, including lesbians and gays. With the recent expansion of gay rights, including SSM, we wanted to learn whether contact with individuals who have entered an SSM is associated with higher levels of support for this LGB right. We find that contact with lesbians and gays who have married is associated with higher probabilities of supporting SSM and that these effects are often more pronounced among demographic groups that are otherwise skeptical of SSM rights. We believe this is because contact with married gays and lesbians has a normalizing effect on individuals' attitudes toward the right of gays and lesbians to marry.

Observational data like ours have difficulty establishing causal relationships or addressing concerns of simultaneity bias due to similar factors explaining both contact with lesbians, gays, or same-sex married couples and SSM support. If contact is simultaneously determined with support, meaning that some types of individuals are more likely to report *both* contact *and* support for SSM than others, then the estimates reported above could be both inconsistent and biased. We test for this possibility and confirm that we have included sufficient covariates that explain both contact (e.g., demographics, foreign travel, political discussion) and SSM support to isolate the marginal association of contact with SSM support. Nevertheless, even if we assume that the relationship between contact and support is both reciprocal and positive (i.e., even while controlling for other factors, SSM support is likely to lead to more contact and contact is likely to lead to more SSM support), then simultaneity bias would *depress or underestimate* the association between contact and support for SSM, making our estimates conservative (see Wooldridge 2013, 558–560).

In addition, unlike previous studies that rely on the timing of SSM legalization and shifts in aggregate support for SSM or LGB rights to infer the effects of policy change on attitudes, we directly measured familiarity with the legalization of SSM and find that it does not explain support for SSM. The models of abortion support rights show that our findings are specific to LGB or SSM contact and not an artifact of spurious relationships due to post-materialism. Together, these analyses suggest we have uncovered relationships that go beyond simple associations to support our claim that contact with lesbians and gay men and particularly with married lesbians or gays leads to higher expressions of support for SSM.

Overall, a first of its kind, our study shows the normalizing effect of legal recognition of LGBT rights, suggesting that SSM may be a first step toward the expansion of additional rights. Future research should look at whether legislation can have a similar effect on other

sexual rights, including for those who identify as transgender. For example, recent research in the United States suggests that intentional, short-term contact designed to persuade people to be more tolerant can have some impact on support for transgender rights, though it is unclear whether persuasion is more effective when issue areas are new, or attitudes have not yet hardened (Broockman and Kalla 2016, 223–224). Likewise, Flores et al. (2018a, 2018b) find that providing information about gender identity and what it means to identify as transgender reduces transphobia and has a positive effect on attitudes about transgender people and support for their rights. As intolerance toward marginalized groups in Western democracies appears to have increased over the last several years, resulting in the election of candidates that embrace intolerance openly, the study of the factors that foster tolerance and acceptance seem particularly urgent. Our study contributes to this need and confirms even further what we have known for some time: one of the best ways to decrease in tolerance is for people to interact more frequently with "the other." Because the normalizing effect is stronger among traditionally conservative groups, such as Evangelical Christians, one could expect important attitudinal changes in countries in which these subgroups are of significant size and that play an important role in national politics, such as Brazil and the United States. Their consistently strong opposition may decrease as they come in contact with married lesbians and gays who have embraced a traditionally heteronormative institution.

Notes

1. Barth and Parry (2009) is limited to data collected in Arkansas in 2004, well before SSM legalization in that state or nationwide.
2. The survey was approved by the University of Wisconsin Institutional Review Board #2015-0432 (N. Lupu) and McMaster University Research Ethics Board #2015-020.
3. The question asking about support for SSM was preceded by one of four randomly assigned conditions. A quarter of respondents were asked their opinion on SSM without any preface; another quarter were reminded "religious leaders say that SSM violates religious values"; another quarter were reminded, "Leaders of the movement for homosexual rights say that SSM is a human right" and the final quarter were reminded of both elite positions. We include controls for each question wording in the analysis, though question wording did not have a statistically significant association with responses.
4. As in most public opinion surveys, respondent sex is coded by the interviewer based on visual cues interpreted by the interviewer, rather than by asking a respondent their self-identified gender. To the extent that gender is socially constructed and fluid rather than dichotomous, this measure likely includes some measurement error as a measure of gender identity.
5. In the Supplemental Information, we include ordinal logistic regression models with alternative measures of contact, linear models with untransformed outcomes, and multinomial logistic regression models. The results are consistent with those in the main text. In the multivariate logistic regressions, contact is significantly associated with expressing support for SSM relative to the "neither" (reference) category but is not statistically associated with expressing opposition. In these specifications, SSM knowledge is not significantly associated with SSM support.
6. Estimates of the average treatment effect using propensity-score matching, matched on the full set of covariates, are similar in size and consistent with the other estimates. See the Supplemental Information.
7. Due to the very small sample of men who report contact with a same-sex married couple, we estimate the interaction between respondent sex and contact as a scale (ranging from zero to two).

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