Sex Res Soc Policy (2018) 15:342–352
https://doi.org/10.1007/s13178-017-0302-0

Differential Effects of the US Supreme Court's Same-Sex Marriage Decision on National Support for Lesbian, Gay, and Bisexual Civil Rights and Sexual Prejudice

Paul B. Perrin[1] · **Erin R. Smith**[1] · **Michael A. Trujillo**[1] · **Annie Rabinovitch**[1] · **Anthony E. Coy**[2]

Published online: 22 October 2017

Abstract The US Supreme Court (SCOTUS) in *Obergefell v. Hodges* legalized same-sex marriage throughout all US states and territories. Before that decision, after, and 1 year later, this successive-independent samples study identified clusters of individuals across the US based on worldview ideologies and used those clusters to examine effects of the SCOTUS decision on support for gay rights and sexual prejudice. Participants were 407 adults from 49 US states and territories. A cluster analysis identified three worldview groups: conservatives (23.6%), moderates (30.2%), and progressives (46.2%). Although no overall changes emerged over time in support for gay rights or sexual prejudice, the conservative group showed a marked polarization after the SCOTUS decision, becoming less supportive of gay rights and more prejudiced. Worldviews explained 68.3% of the variance in same-sex marriage support, 67.5% in gay rights support, and 68.8% in sexual prejudice, effects approaching nearly three times a large-sized effect in the social sciences. These findings add nuance to our understanding of the attitudinal impact of court decisions or legislation around progressive issues like same-sex marriage and gay rights, as well as the potential barriers to cultural progress on these issues.

Keywords Heterosexism · Same-sex marriage · Prejudice · Civil rights

✉ Paul B. Perrin
pperrin@vcu.edu

[1] Department of Psychology, Virginia Commonwealth University, P.O. Box 842018, Richmond, VA 23284-2018, USA

[2] University of South Florida Sarasota Manatee, Sarasota, FL, USA

Introduction

In June of 2015, the Supreme Court of the US (SCOTUS) ruled in *Obergefell v. Hodges* that state-level bans on same-sex marriage were unconstitutional and that the denial of marriage licenses to same-sex couples and refusal of states to recognize marriages performed in other jurisdictions directly violate the Due Process and Equal Protection clauses of the Fourteenth Amendment of the US Constitution. This decision came in the wake of a lengthy, heated, and divisive debate about the legalization of same-sex marriage in the US. Proponents of same-sex marriage legalization have often centered their arguments on human rights and justice, whereas opponents have typically cited religious freedom to bolster their position (Price et al., 2005). Understanding the psychological mechanisms underlying support for or attitudes against same-sex marriage has been a critical area of inquiry within the social sciences (Herek, 2006).

The arduous debate over legalization of same-sex marriage has been representative of part of a larger form of oppression: heterosexism, the "individual, familial, religious, institutional, political, and cultural practices… that deny, devalue, or stigmatize any non-heterosexual form of community, relationship, identity, or behavior" (Szymanski, 2006, p. 227). Despite changing societal attitudes (Herek, 2006), sexual minorities continue to face high levels of discrimination, hostility, and stigma (Rostosky et al., 2009). Data from large-scale, national studies indicate that relative to heterosexuals, sexual minorities contend with greater day-to-day experiences of discrimination, with a large proportion from sexual orientation stigma (Mays & Cochran, 2001). Discrimination and stigma have profoundly negative effects on the mental health of sexual minorities, who are at increased risk for substance use (Cochran et al., 2004), depression, anxiety (Gilman et al., 2001), suicidal ideation (Fergusson et al., 2005; Hill &

Pettit, 2012), and suicide attempts (Gilman et al., 2001; Herrell et al., 1999; King et al., 2008).

Several specific attitudinal predictors of heterosexism, or sexual prejudice, have been identified, including right-wing authoritarianism (RWA; Basow & Johnson, 2000; Whitley & Lee, 2000; Whitley, 1999), social dominance orientation (SDO; Altemeyer, 1998; Whitley & Ægisdóttir, 2000; Whitley & Lee, 2000; Whitley, 1999), traditional gender role beliefs (Basow & Johnson, 2000; Herek, 1988; Whitley & Ægisdóttir, 2000), and religious fundamentalism (Goodman & Moradi, 2008). RWA is marked by submission to "established and legitimate" authorities (Altemeyer, 1981, p. 148), an aggressive stance toward members of out-groups (e.g., minorities), and steadfast adherence to norms upheld by social authorities (Altemeyer, 1981, 1996, 1998). SDO is a similar construct, reflected by the "extent to which one desires that one's in-group dominate and be superior to out-groups" (Pratto et al., 1994, p. 742). Traditional gender role attitudes contend that women and men should adhere to minimally overlapping socially prescribed norms and behaviors, often with women in a subordinate position (McHugh & Frieze, 1997). And finally, religious fundamentalism is a belief system characterized by strict adherence to and interpretation of religious doctrines (Sherkat et al., 2011).

In light of changing attitudes toward same-sex marriage in the US, a growing body of research has begun to examine factors that might influence this shift in attitudes, including social contact with sexual minority individuals, age, and generation (Baunach et al., 2009; Becker & Scheufele, 2011). Research has indicated that personal contact with sexual minorities improves attitudes toward homosexuality and increases support for same-sex marriage (Becker & Scheufele, 2011). The closer the contact (i.e., having a sexual minority family member versus an acquaintance), the greater the impact is on one's opinion toward sexual minorities and same-sex marriage (Brewer, 2007). Several studies have also shown that the shift in public opinion toward sexual minorities and same-sex marriage may be attributable to political votes from younger generations replacing those from older generations (Pew, 2010a; Sherkat et al., 2011). Generally speaking, attitudes toward the entire entities of marriage and family have become more liberal through political involvement of younger cohorts, also shaping public opinion in this domain (Pew, 2010b; Sherkat et al., 2011).

Although broad societal attitudes toward sexual minorities have improved over time (Herek, 2006), social psychology research suggests that progressive social movements may actually have an attitude polarization effect on socially conservative individuals, hardening their entrenched belief systems. For example, seminal research (Lord et al., 1984; Lord et al., 1979) demonstrated that when presented with balanced evidence, people became more entrenched in their views on capital punishment, with individuals holding pro-capital punishment positions becoming more supportive, and individuals holding anti-capital punishment positions becoming less so. This occurs through a likely subconscious processing of the evidence, ignoring flaws in confirmatory evidence while simultaneously emphasizing flaws in contradictory evidence. Ultimately, this evaluative bias results in greater weight being given to confirmatory evidence, resulting in more extreme attitudes. Such processing has been found for both political (e.g., capital punishment, Lord et al., 1979; presidential debates, Munro et al., 2002; Munro & Ditto, 1997) and non-political attitudes (e.g., mental health, Boysen & Vogel, 2007; a football game, Hastorf & Cantril, 1954) and is greatest for strongly held attitudes (Brannon et al., 2007). Moreover, individuals endorse or renounce policy positions based on purported party endorsement (e.g., Bartels, 2002; Cohen, 2003), indicating that biased processing may be queued by political identity and not exclusively by individually held attitudes.

Although no attitude polarization research to date has focused specifically on the issue of same-sex marriage, two studies (Boysen & Vogel, 2007; Munro & Ditto, 1997) did examine homosexuality as a target. Both studies found evidence for biased assimilation and attitude polarization. Boysen and Vogel (2007) found that among those with negative views of homosexuality, only those with extremely negative views endorsed more negative views immediately after reading evidence for biological explanations of homosexuality. Overall, these findings indicate that when presented with novel information regarding homosexuality, those with existing negative views are likely to become more extreme in their views.

In June 2015, the SCOTUS ruling in *Obergefell v. Hodges* marked a turning point in US history, in that for the first time, same-sex marriage became legal throughout all US states and territories. However, published experimental research has yet to examine the potential effects that the ruling had on support for same-sex marriage, support for LGB civil rights, or sexual prejudice in the US. As a result, the purpose of the current successive independent samples study was multifold: (a) to identify clusters of individuals across the US based on deep and engrained worldview ideologies; (b) to use those ideology clusters to identify differential effects of the SCOTUS decision on support for same-sex marriage, support for LGB civil rights, and sexual prejudice; and (c) to measure how much variance worldview ideologies explain in these attitudes toward the LGB community. It was hypothesized that three groups of Americans distinguished by conservative, moderate, or progressive ideologies would emerge (generally mapping onto common political ideologies in the US). It was further hypothesized based on the findings from Boysen and Vogel (2007) that the SCOTUS decision would produce a marked polarization in attitudes toward the LGB community only among the conservative cluster group. Because Boysen

and Vogel (2007) assessed attitudes immediately after their manipulation, it is uncertain whether attitudinal polarizations like this would endure over time. It was therefore also hypothesized that in the current study, this polarization would occur only immediately after the SCOTUS decision, but that attitudes would return to pre-decision levels at a 1-year follow-up, given that these attitudes may likely be fairly engrained and have developed over participants' lifetimes.

Method

Participants

Participants (initial n = 416) were recruited via Amazon's Mechanical Turk (Mturk; www.mturk.com), and location was restricted to individuals residing in the US. Because Mturk tracks the number of times an individual completes a survey, the research team found that seven individuals had participated twice, and as a result, their second sets of data were removed. Of the remaining 409 participants, only two incorrectly responded to more than 1/7 randomly inserted attention check questions (ACQs; e.g., Please select "Strongly agree" for this item), and those participants' responses were also removed. ACQs have been demonstrated to be an effective manner of increasing data quality on Mturk (Buhrmester et al., 2011). This resulted in a final sample size of 407 participants from 49 US states and territories.

Participants were men (n = 164), women (n = 235), and transgender/non-binary individuals (n = 8) and ranged in age from 18 to 77 years old (M = 36.72, SD = 12.75). Race/ethnicity was as follows: 77.4% White/European American (non-Latino), 7.4% Asian/Asian American/Pacific Islander, 6.1% Black/African-American (non-Latino), 5.2% Latino/Hispanic, 3.4% Multiracial/Multiethnic, and .5% American-Indian/Native-American. The sample was generally well-educated: 43.2% reported having a 4-year college degree, 20.9% some college (no degree), 14.5% a master's degree, 9.6% a 2-year/technical degree, 8.6% having graduated high school or obtaining a GED, 2.7% a doctorate degree, and .5% had only finished grade school. Participants' sexual orientations were 87.5% heterosexual, 5.7% bisexual, 4.4% gay or lesbian, and 2.5% queer. Political affiliation was also self-reported: 44.5% Democrat, 31.7% Independent, 16.5% Republican, 4.4% Libertarian, 2.0% Green Party, and 1.0% Tea Party.

Materials

Multi-Dimensional Fundamentalism Inventory (MDFI) The 15-item MDFI (Liht et al., 2011) assessed religious fundamentalist ideology. Participants respond to items on a 4-point Likert-type scale, and higher scores reflect greater religious fundamentalism. An example item is "I admire those who leave their ideas behind and submit to God's will." The scale has 3 subscales: External versus Internal Authority, Fixed versus Malleable Religion, and Worldly Rejection versus Worldly Affirmation. The total score has high internal consistency (α = .85), as do the subscales (α's = .77, .68, and .66, respectively; Liht et al., 2011). The MDFI's total score α in the current sample was .88.

Social Dominance Orientation Scale (SDOS) The SDOS (Pratto et al., 1994) consists of 16 items and assesses the extent to which a person desires that one's own in-group dominate and be superior to out-groups, favoring hierarchy-enhancing ideologies and policies. Participants respond to items on a 7-point Likert-type scale, and higher scores reflect greater endorsement of these ideologies. An example item is "It's probably a good thing that certain groups are at the top and other groups are at the bottom." The scale has been shown to have high internal consistency (α = .91; Pratto et al., 1994). The SDOS's total score α in the current sample was .95.

Short Version of the Right-Wing Authoritarianism Scale (RWA) The Short Version of the RWA (Zakrisson, 2005) consists of 15 items designed to measure conventionalism, authoritarian aggression, and authoritarian submission, collectively known as right-wing authoritarianism. Participants respond to items on a 7-point Likert-type scale, and higher scores reflect greater authoritarian ideology. An example item is "Our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today." Cronbach's α was .72 in the validation study of the scale (Zakrisson, 2005). The RWA's total score α in the current sample was .92.

Gender Role Journey Measure (GRJM) The GRJM's (O'Neil et al., 1993) Acceptance of Traditional Gender Roles subscale, which was the only GRJM subscale used in the current study, assesses endorsement of traditional gender role beliefs. Participants respond to items on a 5-point Likert-type scale, and higher scores reflect greater endorsement of traditional gender roles. An example item is "Men should make the major money decisions for the family." The subscale has 10 items and strong internal consistency (α = .87; O'Neil et al., 1993). The GRJM's Acceptance of Traditional Gender Roles subscale α in the current sample was .90.

Revised Short Version of the Attitudes Toward Lesbians and Gay Men Scale (ATLG-R-S5) The ATLG-R-S5 (Herek, 1997) measures an individual's prejudice toward gay men and lesbians. Participants respond to items on a 5-point Likert-type scale, and higher scores reflect greater sexual prejudice. An example item is "Sex between two men is just plain wrong."

The scale consists of two subscales with five items each: Attitudes Toward Gay Men and Attitudes Toward Lesbians, which both have strong internal consistency in college student samples (α > .85) and nonstudent adult samples (α > .85; Herek, 1997). The ATLG-R-S5's total score α in the current sample was .96.

Attitudes Toward Same-Sex Marriage Scale (ATSSM) The ATSSM (Pearl & Galupo, 2007) is a 17-item scale used to measure attitudes toward same-sex marriage. Participants respond to items on a 5-point Likert-type scale, and higher scores reflect more positive attitudes. An example item is "Same-sex marriage undermines the meaning of the traditional family." This measure has high internal reliability with α's ranging from .96 to .97 (Pearl & Galupo, 2007). The ATSSM's total score α in the current sample was .98.

Procedure

Institutional Review Board approval of the study's protocol occurred before any participant recruitment. Participants were recruited via Mturk, an online marketplace where individuals can be recruited to complete a human intelligence task (HIT), such as online surveys. When participants identify a HIT they would like to complete, they are given a preview of the HIT and instructions to complete it. Once a participant has satisfactorily completed the HIT, researchers compensate the workers. Funds are deposited into an account to purchase Mturk HITs, and in the present study, participants were compensated $1 (USD) for completing the HIT. Collection of identifying information (e.g., names, email addresses) is prohibited by Mturk, so this survey was completed anonymously.

Data were collected at three time points in exactly the same manner in order to maximize the consistency between data collections in this successive- independent samples procedure. Wave 1 was collected on June 17, 2015 (a Wednesday) beginning at 8:30 pm EST (n = 136), wave 2 was collected on July 8, 2015 (also a Wednesday) at 8:30 pm EST (n = 139), and wave 3 was collected on June 29, 2016 (also a Wednesday) at 8:30 pm EST (n = 132). The first dates were approximately 1.5 weeks before and after the June 26, 2015 SCOTUS decision. Wave 3 occurred approximately 1 year after the SCOTUS decision. The specific time was chosen to allow individuals in more western time zones the ability to complete the survey not during traditional work hours and, as a result, to collect a sample generally spread out across the US.

In recent years, Mturk has become increasingly popular for survey-based research (Huff & Tingley, 2015). Understandably, concerns regarding the external validity of these results have been raised. Although Amazon has not released information on participant demographic characteristics to the public, studies using exploratory surveys have gathered demographic information from various Mturk samples. These studies have found that Mturk workers are more diverse than participants recruited through traditional methods and other online samples (Casler et al., 2013). Further, Mturk participants have been shown to be more representative of the US population than participants recruited through convenience sampling in person (Berinsky et al., 2012).

Data obtained from Mturk have also been demonstrated to be at least as reliable as data obtained via traditional research methods (Buhrmester et al., 2011). For example, Casler et al. (2013) participants performed just as well on a behavioral task as those who completed the task in person. Priming tasks, prisoner's dilemma tasks, and framing effects tasks are also as reliable on Mturk as they are in in-person computer laboratories (Horton et al., 2011), and studies examining risk taking and body satisfaction in Mturk samples have all had similar outcomes to studies using traditional recruitment methods (Eriksson & Simpson, 2010; Gardner et al., 2012). Another common concern raised about Mturk is employment status of participants as well as the representativeness of various occupational industries. However, Huff and Tingley (2015) found that employment status reported by Mturk participants is similar to results from the Cooperative Congressional Election Survey, a nationally stratified sample survey that is administered yearly by the US federal government.

Statistical Analyses

Tests of skewness and kurtosis were run to examine distributions of all variables. Then, a k-means cluster analysis was conducted to determine what clusters of participants emerge based on the four worldview ideologies measured in this study: religious fundamentalism, traditional gender role beliefs, social dominance orientation (SDO), and right-wing authoritarianism (RWA). Three predicted groups (conservatives, moderates, and progressives) were specified in this analysis. Then, in order to control for family-wise error, a multivariate analysis of variance (MANOVA) was run, and the independent variables were time (before the SCOTUS same-sex marriage decision, immediately after, and 1 year after), participants' membership in the three cluster groups, and the time * group interaction. The dependent variables were support for same-sex marriage, support for LGB civil rights, or LGB prejudice. Then, in order to identify the precise location of effects, three follow-up analyses of variance (ANOVAs) were conducted with the same independent variables, although a separate ANOVA was run for each dependent variable. All overall statistical effects for group and the time * group interaction are presented as one-tailed, given the directional hypotheses, but for time as two-tailed, given the lack of a directional hypothesis. Finally, three simultaneous multiple regressions were run to determine the extent to which religious fundamentalism,

traditional gender role beliefs, SDO, and RWA significantly predicted support for same-sex marriage, support for LGB civil rights, and LGB prejudice.

A power analysis was performed using G*Power 3. A medium-sized effect of Cohen's $f = .25$ was used to determine the sample size needed for a main effect in the ANOVAs of group (hypothesized three groups: conservative, moderate, and progressive ideologies), a main effect of time (three time points: before, after, and 1 year after the SCOTUS decision), and a group * time interaction on each of the dependent variables. With 80% power ($1 - \beta$), a sample size of 196 participants is needed in order to detect a medium-sized effect on any of the outcomes.

Results

Normality

Tests of skewness and kurtosis were run for all variables including religious fundamentalism, traditional gender role beliefs, SDO, RWA, support for same-sex marriage, support for LGB civil rights, and LGB prejudice. All kurtosis coefficients were below an absolute value threshold of 1.0 with the most kurtotic variable (support for LGB civil rights) reaching a kurtosis value of .71. The vast majority of skewness coefficients were also below an absolute value of 1.0, although the coefficients for support for same-sex marriage (− 1.02), support for LGB civil rights (− 1.18), and LGB prejudice (1.06) just surpassed this threshold. Because there were only minor and isolated departures from normality, the original scores of all variables were retained in the following analyses.

Cluster Analysis

Participants' scores on religious fundamentalism, traditional gender role beliefs, SDO, and RWA were converted to *z*-scores and analyzed using a *k*-means cluster analysis with a three-group cluster specification. Convergence was reached in 25 iterations. Univariate ANOVAs indicated that the cluster groups differed significantly on all four classifying variables (all $ps < .001$). The final cluster centers together with the number of participants in each cluster are shown in Table 1.

Participants in cluster 1 appeared to be slightly above average in religious fundamentalism and RWA, as well as moderately above average in traditional gender role beliefs and SDO. These individuals could be labeled "conservatives." Cluster 2 participants were slightly below average on all four classifying variables and therefore could be labeled "progressives." Participants in cluster 3 were slightly above average on religious fundamentalism and RWA but in the average range on traditional gender role beliefs and SDO. These individuals could be labeled "moderates."

MANOVA and ANOVAs

The MANOVA revealed a statistically significant effect for cluster group, Pillai's Trace = .51, $F(6, 794) = 44.98$, $p < .001$, $\eta^2 = .25$; no effect for time, Pillai's Trace = .01, $F(6, 794) = .82$, $p = .553$, $\eta^2 = .01$; and a statistically significant effect for the time * group interaction, Pillai's Trace = .05, $F(12, 1194) = 1.63$, $p = .039$, $\eta^2 = .02$. As a result, three post hoc ANOVAs were run to identify the location of the effects.

The first follow-up ANOVA with attitudes toward same-sex marriage as the dependent variable showed statistically significant effects for the cluster group [$F(2, 398) = 174.91$, $p < .001$, $\eta^2 = .47$] and for the time * group interaction [$F(4, 398) = 2.95$, $p = .010$, $\eta^2 = .03$], but not for time [$F(2, 398) = 2.29$, $p = .102$, $\eta^2 = .01$]. Participants' support for same-sex marriage over time as a function of group membership is presented in Fig. 1. Progressives had the highest support for same-sex marriage over time, followed by moderates and then conservatives. Although there was no overall change in participants' support for same-sex marriage as a function of the SCOTUS decision, conservatives showed a marked decrease in support for same-sex marriage after the decision, which returned to prior-decision levels at the 1-year follow-up. A *t* test comparing conservatives' support for same-sex marriage at time 1 ($M = 49.97$, $SD = 15.19$) and time 2 ($M = 39.07$, $SD = 20.90$) suggested a statistically significant decrease ($p = .013$, one-tailed).

The second follow-up ANOVA with support for LGB civil rights showed similarly statistically significant effects for cluster group [$F(2, 398) = 188.18$, $p < .001$, $\eta^2 = .49$] and for the time*group interaction [$F(4, 398) = 3.54$, $p = .004$, $\eta^2 = .03$], but not for time [$F(2, 398) = 1.76$, $p = .173$, $\eta^2 = .01$]. Participants' support for LGB civil rights over time as a function of group membership is presented in Fig. 2. As with support for same-sex marriage, progressives had the highest support for LGB civil rights over time, followed by moderates and then conservatives. Similarly, although there was no overall change in participants' support for LGB civil rights as a function of the SCOTUS decision, conservatives showed a decrease in support for LGB civil rights after the decision, which returned to prior-decision levels at 1 year. A *t* test comparing conservatives' support for LGB civil rights at time 1 ($M = 85.97$, $SD = 19.90$) and time 2 ($M = 71.90$, $SD = 28.59$) suggested a statistically significant decrease ($p = .016$, one-tailed).

The third follow-up ANOVA with LGB prejudice showed similarly statistically significant effects for cluster group [$F(2, 398) = 165.28$, $p < .001$, $\eta^2 = .45$] and for the time * group interaction [$F(4, 398) = 2.45$, $p = .023$, $\eta^2 = .02$], but not for time [$F(2, 398) = 1.59$, $p = .205$, $\eta^2 = .01$]. Participants' LGB prejudice over time as a function of group membership is presented in Fig. 3. Progressives had the lowest LGB

Table 1 Final cluster centers and cluster sample sizes

	1: conservatives	2: progressives	3: moderates
Classifying variable	Final cluster centers		
Religious fundamentalism	.71	− .78	.65
Traditional gender role beliefs	1.31	− .71	.07
Social dominance orientation	1.37	− .63	− .10
Right-wing authoritarianism	.79	− .83	.65
Time point	Cluster sample size		
Time 1	$n = 30$	$n = 56$	$n = 50$
Time 2	$n = 29$	$n = 73$	$n = 37$
Time 3	$n = 37$	$n = 59$	$n = 36$
Total	$n = 96$	$n = 188$	$n = 123$

prejudice over time, followed by moderates and then conservatives. Although there was no overall change in participants' LGB prejudice as a function of the SCOTUS decision, conservatives showed a marked increase in LGB prejudice afterward, which returned to prior-decision levels at the 1-year follow-up, in line with the effects on support for same-sex marriage and LGB civil rights. A t test comparing conservatives' LGB prejudice at time 1 ($M = 29.87$, $SD = 8.59$) and time 2 ($M = 35.14$, $SD = 12.57$) suggested a statistically significant increase ($p = .032$, one-tailed).

Regressions

The first simultaneous multiple regression found that religious fundamentalism, traditional gender role beliefs, SDO, and RWA significantly explained 68.3% of the variance in support for same-sex marriage, $F(4, 402) = 216.48$, $p < .001$. Within this overall model, religious fundamentalism, traditional gender role beliefs, and RWA were unique predictors, although SDO was not. See Table 2 for all standardized β weights and p values of each predictor variable in the three regressions. The second regression found that these same variables significantly explained 67.5% of the variance in support for LGB civil rights, $F(4, 402) = 209.00$, $p < .001$. As before, religious fundamentalism, traditional gender role beliefs, and RWA were unique predictors, although SDO was not. The third regression found that these variables significantly explained 68.8% of the variance in LGB prejudice, $F(4, 402) = 221.95$, $p < .001$. Again, religious fundamentalism, traditional gender role beliefs, and RWA were unique predictors, although SDO was not.

Discussion

The purpose of the current study was (a) to identify clusters of individuals across the US based on deep and ingrained worldview ideologies; (b) to use those ideology clusters to identify differential effects of the SCOTUS decision on support for same-sex marriage, support for LGB civil rights, and sexual prejudice; and (c) to identify how much variance these deep worldview ideologies could explain in attitudes toward the LGB community. A cluster analysis used four worldview ideologies (religious fundamentalism, traditional gender role beliefs, social dominance orientation [SDO], and right-wing authoritarianism [RWA]) to identify three groups of

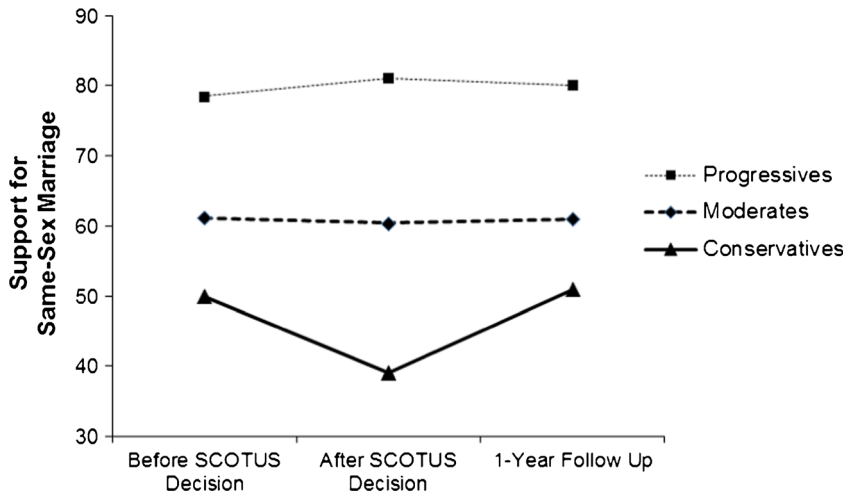

Fig. 1 Differential effects of the SCOTUS decision on support for same-sex marriage

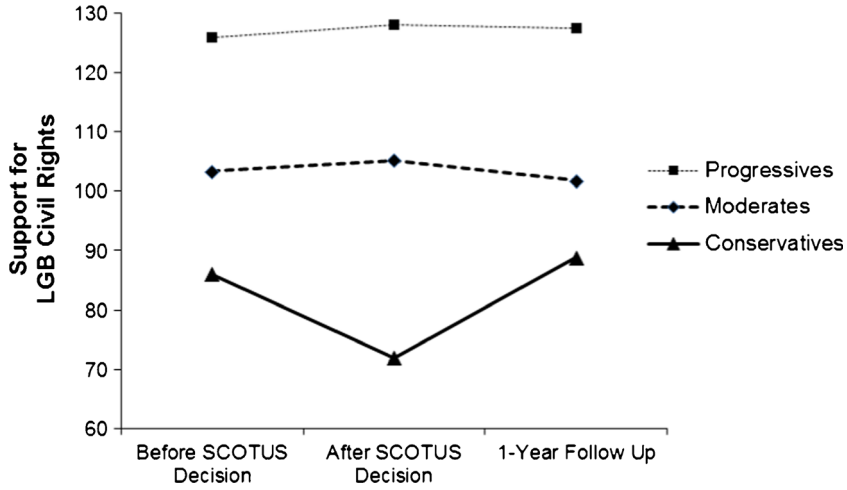

Fig. 2 Differential effects of the SCOTUS decision on support for LGB civil rights

participants: conservatives (23.6%), moderates (30.2%), and progressives (46.2%). Although there were no overall changes across time in support for same-sex marriage, support for LGB civil rights, or sexual prejudice, the conservative group showed a marked attitude polarization after the SCOTUS ruling, in which they became more prejudiced and less supportive of same-sex marriage and LGB civil rights. These four worldview ideologies explained 68.3% of the variance in support for same-sex marriage, 67.5% in support for LGB civil rights, and 68.8% in LGB prejudice, all effects approaching nearly three times the size of what has traditionally been considered a large-size effect in the social sciences.

Clustering of Sociopolitical Views

The three clusters of participants that emerged in the cluster analysis (conservatives, moderates, and progressives) generally mapped on to the sociopolitical views common in the US. The most common cluster group in this study was progressives, comprising nearly half of participants. Although Mturk workers have been found to be more diverse than participants recruited through traditional methods (Casler et al., 2013), as well as more representative of the US population (Berinsky et al., 2012), this finding could have been due in part to the use of Mturk, where participants are likely more literate, more technologically comfortable, and younger than individuals in the US without access to the internet or the savvy to earn money on the internet.

Sociopolitical Views and LGB Attitudes

Consistently across the three time points, progressives showed the highest support for same-sex marriage and LGB civil rights as well as the lowest sexual prejudice, followed by moderates and then conservatives. These effects were all large and generally mirrored previous findings that self-identified Republicans endorse higher levels of heterosexism than Democrats (Bierly, 1985), although this was the first study to find an effect based on worldview ideology clustering, not on self-identified political labels. Similarly, the four

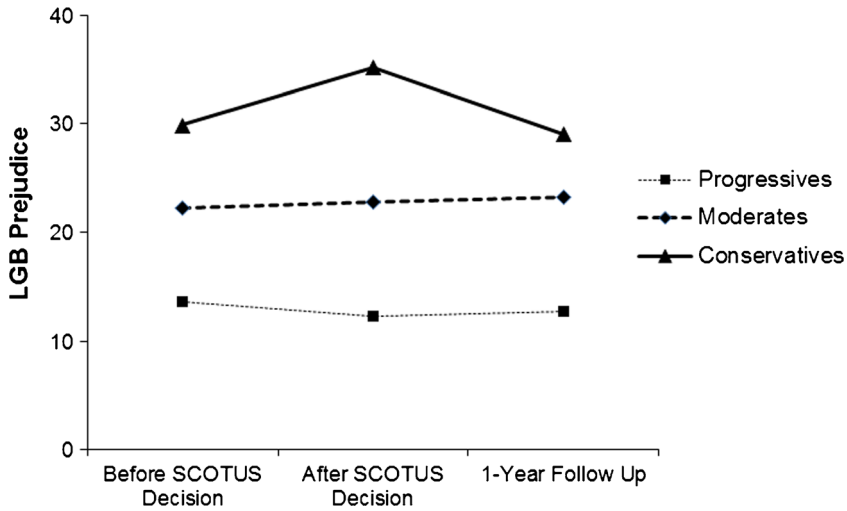

Fig. 3 Differential effects of the SCOTUS decision on LGB prejudice

Table 2 Standardized β weights and p values of the three regressions

Criterion variable	Predictor	β weight	p value
Support for same-sex marriage	Religious fundamentalism	− .38	< .001
	Right-wing authoritarianism	− .25	< .001
	Traditional gender role beliefs	− .31	< .001
	Social dominance orientation	− .02	.590
Support for LGB civil rights	Religious fundamentalism	− .24	< .001
	Right-wing authoritarianism	− .34	< .001
	Traditional gender role beliefs	− .36	< .001
	Social dominance orientation	− .02	.653
LGB prejudice	Religious fundamentalism	.32	< .001
	Right-wing authoritarianism	.32	< .001
	Traditional gender role beliefs	.30	< .001
	Social dominance orientation	.02	.554

worldview ideologies explained a substantial amount of variance in these three sexual attitudinal variables, surpassing the sizes of most effects found in the social sciences.

These ideologies likely represent important and perhaps fundamental worldviews which strongly dictate attitudes toward LGB people and their civil rights (Altemeyer & Hunsberger, 1992; Johnson et al., 2011; Whitley & Ægisdóttir, 2000). Perhaps these ideologies stem from even more primary epistemological styles that at a deep psychological level led to the ideological clustering which emerged in the cluster analysis. It is possible that individuals who use social hierarchies and traditional belief systems to guide their understanding are also more likely to see the world in black and white, a process that perhaps can give rise to heterosexist prejudice, as a same-sex romantic lifestyle contrasts with the traditional social norms of man-woman relationships and most traditional religious belief systems (Wilkinson & Migotsky, 1994). Similarly, people who see events as more subjective and nuanced may have greater acceptance of non-traditional sexual orientations (Wilkinson & Migotsky, 1994).

A ripe implication of these findings is that in order to improve the public's attitudes toward the LGB community and toward their civil rights, the process may require a more fundamental, underlying shift in worldview ideology, as opposed to expecting simply the movement of more surface-level attitudes. In other words, to move the top (LGB attitudes) of the metaphorical iceberg, a deeper level of processing and questioning is perhaps necessary than simply education or public debate about the civil rights of the LGB community.

Luckily, evidence suggests that these worldview ideologies, though perhaps fundamental, may not actually be immutable. Sibley et al. (2007) found that reductions in seeing the world as dangerous or competitive led to *decreases* over time in RWA and SDO, respectively. The authors argued that sociostructural characteristics of the environment, perhaps particularly during critical developmental periods such as childhood or young adulthood, that help reduce an unnecessary sense of fear or competition could decrease RWA and SDO. Other research has found that malleability in worldviews may be ushered in by social context and cultural change, with shifts in beliefs around traditional gender roles as some evidence of this (Wang et al., 2013). Generally speaking, attitudes toward the entire entities of marriage and family have become more liberal through political involvement of younger cohorts, also shaping public opinion in this domain (Pew, 2010a; Sherkat et al., 2011).

SCOTUS Decision's Influence on LGB Attitudes

As predicted, a pro-LGB SCOTUS decision failed to improve public support for same-sex marriage and LGB civil rights or sexual prejudice, either immediately after the decision or at the 1-year follow-up. Despite the documented progressive shift over time in attitudes toward the entities of marriage and family (Pew, 2010b; Sherkat et al., 2011), this 1-year follow-up was likely too short to detect an effect, if there indeed would be one with a longer interval. In fact, rather than having a pro-civil rights effect, the SCOTUS decision actually made the conservative cluster of participants initially *less* supportive of same-sex marriage and LGB civil rights, as well as *more* prejudiced toward the LGB community. These polarization effects align closely with Boysen and Vogel's (2007) findings, whereby participants with extremely negative views about homosexuality had even more negative views after reading evidence for biological explanations of homosexuality. However, the current findings substantially extend Boysen and Vogel's (2007) laboratory research into the real world. To the authors' knowledge, the current study is the only published study to conduct a tightly controlled, national experiment using the actual implementation of civil rights law as an independent variable. Further, this is the only published study to document scientifically the attitudinal polarization that can

occur after that implementation, or in other words, the magnitude and longevity of attitudinal civil rights backlash (Bishin et al., 2016) at a national level.

Limitations and Future Directions

Despite this study's implications for understanding the effects of the implementation of civil rights legislation, it has several limitations, and as a result directions for future research. Although the data were collected at three time points in exactly the same manner using an successive-independent samples survey design, which is a common approach for examining attitudinal changes over time, a more powerful design would have been collecting data from the same participants longitudinally at each time point. Unfortunately, given the extremely quick turnaround necessary for Institutional Review Board approval and launching the study once a SCOTUS decision seemed imminent, it was not feasible to recruit a national sample willing to participate in a longitudinal data collection. Significant parallel findings from future research using a repeated-measures design would allow researchers to draw more confidently the conclusions that were drawn here with this independent-samples design.

Although there is accumulating research documenting the relative diversity and national representativeness of Mturk samples (Berinsky et al., 2012; Casler et al., 2013), the current sample was likely ideologically more progressive than the overall US population. This sample bias could have actually underestimated the attitude polarization effect of the SCOTUS decision relative to what would have emerged if the current sample truly were more representative and included individuals in the US without access to the internet or the desire to earn money online. This omitted swath of the American public would perhaps also be much more unlikely to participate in psychological research, particularly on attitudes toward the LGB community, so traditional paper-and-pencil recruitment approaches or even more traditional online recruitment approaches not using Mturk likely would have been limited in capturing this group. Future research would greatly benefit from using sampling approaches and venues that better target more traditional or hard-to-reach participants, such as churches, rural community centers, community health clinics, and nonprofits.

Conclusions and Implications for Evidence-Based Social Justice Activism

These findings add nuance to our understanding of the attitudinal impact of controversial court decisions or legislation around progressive issues like same-sex marriage and LGB civil rights and the potential barriers to cultural progress on these issues. The good news for social justice activism from the current study is that polarization—or backlash—may be intense immediately after the implementation of civil rights laws but could decrease to baseline levels a year later. While there have been few instances of outright defiance of same-sex marriage rulings and laws (e.g., county clerk Kim Davis in Kentucky [Blinder & Pérez-Peña, 2015], Supreme Court Justice Roy Moore in Alabama [Blinder, 2015]), polarized attitudes and behaviors like these are unlikely to permanently affix themselves in the US' social fabric and instead to recede to at least pre-legislation levels over time as the public gets used to the legislation.

Clinical or behavioral interventions that attempt to spur movement in worldview ideologies—particularly those that draw upon social norms via intergroup contact with LGB individuals, or those that help people question social hierarchies and correct attitudes that the world is inherently dangerous or that resources are inherently scare (e.g., same-sex marriage will make opposite-sex marriage less valuable)—may aid in reducing prejudice and increasing support for LGB civil rights (Paluck & Green, 2009), although much more research on the topic is needed before any concrete recommendations can be drawn. Broockman and Kalla (2016) recently found that door-to-door canvassing specifically using perspective-taking techniques to build empathy for transgender individuals was able to reliably reduce transphobia, even at a 3-month follow-up, and increase support for a nondiscrimination law. This type of perspective-taking technique may actually counteract or help to soften some of the rigid belief systems found in the current study to contribute to LGB prejudice and support for LGB civil rights, although that assertion awaits support from future research. Despite Broockman and Kalla (2016), it should be noted that substantial more research needs to be conducted on what types of interventions actually decrease prejudice and increase support for civil rights. Social psychologists (e.g., Paluck & Green, 2009) have argued that the science on prejudice reduction interventions is truly in its infancy, and even experimental studies such as the current study should be careful in making firm generalizations about what works.

The findings from the current study, however, do suggest that interventions such as Broockman and Kalla's, and others based on evidence from the social sciences, may engender backlash from individuals with conservative worldview ideologies, particularly when the interventions achieve their ultimate goal of the passage or implementation of civil rights legislation. But it is critical that evidence-based social justice activists remain steadfast and unwavering, even in the face of public backlash to their efforts.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

Altemeyer, B. (1981). *Right-wing authoritarianism*. Winnipeg: University of Manitoba Press.

Altemeyer, B. (1996). *The authoritarian specter*. Cambridge, MA: Harvard University Press.

Altemeyer, B. (1998). The other "authoritarian personality". *Adv Exp Soc Psychol, 30*, 47–92.

Altemeyer, B., & Hunsberger, B. (1992). Authoritarianism, religious fundamentalism, quest, and prejudice. *Int J Psychol Relig, 2*(2), 113–133. https://doi.org/10.1207/s15327582ijpr0202_5.

Bartels, L. M. (2002). Beyond the running tally: Partisan bias in political perceptions. *Polit Behav, 24*(2), 117–150.

Basow, S. A., & Johnson, K. (2000). Predictors of homophobia in female college students. *Sex Roles, 42*(5–6), 391–404. https://doi.org/10.1023/A:1007098221316.

Baunach, D. M., Burgess, E. O., & Muse, C. S. (2009). Southern (dis)comfort: Sexual prejudice and contact with gay men and lesbians in the South. *Sociol Spectr, 30*(1), 30–64. https://doi.org/10.1080/02732170903340893.

Becker, A. B., & Scheufele, D. A. (2011). New voters, new outlook? Predispositions, social networks, and the changing politics of gay civil rights. *Soc Sci Q, 92*(2), 324–345. https://doi.org/10.1111/j.1540-6237.2011.00771.x.

Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon.com's Mechanical Turk. *Polit Anal, 20*(3), 351–368. https://doi.org/10.1093/pan/mpr057.

Bierly, M. M. (1985). Prejudice toward contemporary outgroups as a generalized attitude. *J Appl Soc Psychol, 15*(2), 189–199. https://doi.org/10.1111/j.1559-1816.1985.tb02344.x.

Bishin, B. G., Hayes, T. J., Incantalupo, M. B., & Smith, C. A. (2016). Opinion backlash and public attitudes: Are political advances in gay rights counterproductive? *Am J Polit Sci, 60*(3), 625–648. https://doi.org/10.1111/ajps.12181.

Blinder, A. (2015). Alabama judge defies gay marriage law. *The New York Times*. Retrieved February 8, 2015 from https://www.nytimes.com/2015/02/09/us/gay-marriage-set-to-begin-in-alabama-amid-protest.html

Blinder, A., Pérez-Peña, R. (2015). Kentucky clerk denies same-sex marriage licenses, defying court. *The New York Times*. Retrieved September 1, 2015 from https://www.nytimes.com/2015/09/02/us/same-sex-marriage-kentucky-kim-davis.html?smid=pl-share

Boysen, G. A., & Vogel, D. L. (2007). Biased assimilation and attitude polarization in response to learning about biological explanations of homosexuality. *Sex Roles, 57*(9–10), 755–762. https://doi.org/10.1007/s11199-007-9256-7.

Brannon, L. A., Tagler, M. J., & Eagly, A. H. (2007). The moderating role of attitude strength in selective exposure to information. *J Exp Soc Psychol, 43*(4), 611–617. https://doi.org/10.1016/j.jesp.2006.05.001.

Brewer, P. R. (2007). *Value war: Public opinion and the politics of gay rights*. Lanham: Rowman & Littlefield Publishers.

Broockman, D., & Kalla, J. (2016). Durably reducing transphobia: A field experiment on door-to-door canvassing. *Science, 352*(6282), 220–224. https://doi.org/10.1126/science.aad9713.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspect Psychol Sci, 6*(1), 3–5. https://doi.org/10.1177/1745691610393980.

Casler, K., Bickel, L., & Hackett, E. (2013). Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Comput Hum Behav, 29*(6), 2156–2160. https://doi.org/10.1016/j.chb.2013.05.009.

Cochran, S. D., Ackerman, D., Mays, V. M., & Ross, M. W. (2004). Prevalence of non-medical drug use and dependence among homosexually active men and women in the US population. *Addiction, 99*(8), 989–998. https://doi.org/10.1111/j.1360-0443.2004.00759.x.

Cohen, G. L. (2003). Party over policy: The dominating impact of group influence on political beliefs. *J Pers Soc Psychol, 85*(5), 808–822. https://doi.org/10.1037/0022-3514.85.5.808.

Eriksson, K., & Simpson, B. (2010). Emotional reactions to losing explain gender differences in entering a risky lottery. *Judgm Decis Mak, 5*(3), 159–163.

Fergusson, D. M., Horwood, L. J., Ridder, E. M., & Beautrais, A. L. (2005). Sexual orientation and mental health in a birth cohort of young adults. *Psychol Med, 35*(7), 971–981.

Gardner, R. M., Brown, D. L., & Boice, R. (2012). Using Amazon's Mechanical Turk website to measure accuracy of body size estimation and body dissatisfaction. *Body Image, 9*(4), 532–534. https://doi.org/10.1016/j.bodyim.2012.06.006.

Gilman, S. E., Cochran, S. D., Mays, V. M., Hughes, M., Ostrow, D., & Kessler, R. C. (2001). Risk of psychiatric disorders among individuals reporting same-sex sexual partners in the National Comorbidity Survey. *Am J Public Health, 91*(6), 933–939.

Goodman, M. B., & Moradi, B. (2008). Attitudes and behaviors toward lesbian and gay persons: Critical correlates and mediated relations. *J Couns Psychol, 55*(3), 371–384. https://doi.org/10.1037/0022-0167.55.3.371.

Hastorf, A. H., & Cantril, H. (1954). They saw a game; a case study. *J Abnorm Soc Psychol, 49*(1), 129–134. https://doi.org/10.1037/h0057880.

Herek, G. M. (1988). Heterosexuals' attitudes toward lesbians and gay men: Correlates and gender differences. *The Journal of Sex Research, 25*(4), 451–477.

Herek, G. M. (1997). The attitudes toward lesbians and gay men (ATLG) scale. In C. M. Davis, W. H. Yarber, R. Bauserman, G. Schreer, & S. L. Davis (Eds.), *Sexuality-related measures: A compendium*. Thousand Oaks, CA: Sage Publications.

Herek, G. M. (2006). Legal recognition of same-sex relationships in the United States: A social science perspective. *The American Psychologist, 61*(6), 607–621. https://doi.org/10.1037/0003-066X.61.6.607.

Herrell, R., Goldberg, J., True, W. R., Ramakrishnan, V., Lyons, M., Eisen, S., & Tsuang, M. T. (1999). Sexual orientation and suicidality: A co-twin control study in adult men. *Arch Gen Psychiatry, 56*(10), 867–874.

Hill, R. M., & Pettit, J. W. (2012). Suicidal ideation and sexual orientation in college students: The roles of perceived burdensomeness, thwarted belongingness, and perceived rejection due to sexual orientation. *Suicide & Life-Threatening Behavior, 42*(5), 567–579. https://doi.org/10.1111/j.1943-278X.2012.00113.x.

Horton, J. J., Rand, D. G., & Zeckhauser, R. J. (2011). The online laboratory: Conducting experiments in a real labor market. *Exp Econ, 14*(3), 399–425. https://doi.org/10.1007/s10683-011-9273-9.

Huff, C., & Tingley, D. (2015). "Who are these people?" Evaluating the demographic characteristics and political preferences of MTurk survey respondents. *Research & Politics, 2*(3), 2053168015604648. https://doi.org/10.1177/2053168015604648.

Johnson, M. K., Rowatt, W. C., Barnard-Brak, L. M., Patock-Peckham, J. A., LaBouff, J. P., & Carlisle, R. D. (2011). A mediational analysis of the role of right-wing authoritarianism and religious fundamentalism in the religiosity–prejudice link. *Personal Individ Differ, 50*(6), 851–856. https://doi.org/10.1016/j.paid.2011.01.010.

King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry, 8*, 70. https://doi.org/10.1186/1471-244X-8-70.

Liht, J., Conway, L. G., Savage, S., White, W., & O'Neill, K. A. (2011). Religious fundamentalism: An empirically derived construct and measurement scale. *Arch Psychol Relig, 33*(3), 299–323. https://doi.org/10.1163/157361211X594159.

Lord, C. G., Lepper, M. R., & Preston, E. (1984). Considering the opposite: A corrective strategy for social judgment. *J Pers Soc Psychol, 47*(6), 1231–1243.

Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *J Pers Soc Psychol, 37*(11), 2098–2109.

Mays, V. M., & Cochran, S. D. (2001). Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. *Am J Public Health, 91*(11), 1869–1876.

McHugh, M. C., & Frieze, I. H. (1997). The measurement of gender-role attitudes: A review and commentary. *Psychol Women Q, 21*(1), 1–16. https://doi.org/10.1111/j.1471-6402.1997.tb00097.x.

Munro, G. D., & Ditto, P. H. (1997). Biased assimilation, attitude polarization, and affect in reactions to stereotype-relevant scientific information. *Personal Soc Psychol Bull, 23*(6), 636–653. https://doi.org/10.1177/0146167297236007.

Munro, G. D., Ditto, P. H., Lockhart, L. K., Fagerlin, A., Gready, M., & Peterson, E. (2002). Biased assimilation of sociopolitical arguments: Evaluating the 1996 U.S. presidential debate. *Basic Appl Soc Psychol, 24*(1), 15–26. https://doi.org/10.1207/S15324834BASP2401_2.

O'Neil, J. M., Egan, J., Owen, S. V., & Murry, V. M. (1993). The gender role journey measure: Scale development and psychometric evaluation. *Sex Roles, 28*(3–4), 167–185. https://doi.org/10.1007/BF00299279.

Paluck, E. L., & Green, D. P. (2009). Prejudice reduction: What works? A review and assessment of research and practice. *Annu Rev Psychol, 60*, 339–367. https://doi.org/10.1146/annurev.psych.60.110707.163607.

Pearl, M. L., & Galupo, M. P. (2007). Development and validation of the attitudes toward same-sex marriage scale. *J Homosex, 53*(3), 117–134. https://doi.org/10.1300/J082v53n03_07.

Pew. (2010a). *Support for same-sex marriage edges upward*. Washington DC: Pew Research Center Retrieved from http://www.people-press.org/2010/10/06/support-for-same-sex-marriage-edges-upward/.

Pew. (2010b). *The decline of marriage and rise of new families*. Washington DC: Pew Research Center Retrieved from http://www.pewsocialtrends.org/2010/11/18/the-decline-of-marriage-and-rise-of-new-families/.

Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *J Pers Soc Psychol, 67*(4), 741–763. https://doi.org/10.1037/0022-3514.67.4.741.

Price, V., Nir, L., & Cappella, J. N. (2005). Framing public discussion of gay civil unions. *Public Opinion Quarterly, 69*(2), 179–212. https://doi.org/10.1093/poq/nfi014.

Rostosky, S. S., Riggle, E. B. D., Horne, S. G., & Miller, A. D. (2009). Marriage amendments and psychological distress in lesbian, gay, and bisexual (LGB) adults. *J Couns Psychol, 56*(1), 56–66. https://doi.org/10.1037/a0013609.

Sherkat, D. E., Powell-Williams, M., Maddox, G., & de Vries, K. M. (2011). Religion, politics, and support for same-sex marriage in the United States, 1988–2008. *Soc Sci Res, 40*(1), 167–180. https://doi.org/10.1016/j.ssresearch.2010.08.009.

Sibley, C. G., Wilson, M. S., & Duckitt, J. (2007). Effects of dangerous and competitive worldviews on right-wing authoritarianism and social dominance orientation over a five-month period. *Political Psychology, 28*(3), 357–371. https://doi.org/10.1111/j.1467-9221.2007.00572.x.

Szymanski, D. M. (2006). Does internalized heterosexism moderate the link between heterosexist events and lesbians' psychological distress? *Sex Roles, 54*(3–4), 227–234. https://doi.org/10.1007/s11199-006-9340-4.

Wang, W., Parker, K., & Taylor, P. (2013). *Breadwinner moms*. Washington DC. Retrieved from http://www.pewsocialtrends.org/2013/05/29/breadwinner-moms/

Whitley, B. E., & Ægisdóttir, S. (2000). The gender belief system, authoritarianism, social dominance orientation, and heterosexuals' attitudes toward lesbians and gay men. *Sex Roles, 42*(11–12), 947–967. https://doi.org/10.1023/A:1007026016001.

Whitley, B. E., & Lee, S. E. (2000). The relationship of authoritarianism and related constructs to attitudes toward homosexuality. *J Appl Soc Psychol, 30*(1), 144–170. https://doi.org/10.1111/j.1559-1816.2000.tb02309.x.

Whitley Jr., B. E. (1999). Right-wing authoritarianism, social dominance orientation, and prejudice. *J Pers Soc Psychol, 77*(1), 126–134. https://doi.org/10.1037/0022-3514.77.1.126.

Wilkinson, W. K., & Migotsky, C. P. (1994). A factor analytic study of epistemological style inventories. *The Journal of Psychology, 128*(5), 499–516. https://doi.org/10.1080/00223980.1994.9914909.

Zakrisson, I. (2005). Construction of a short version of the right-wing authoritarianism (RWA) scale. *Personal Individ Differ, 39*(5), 863–872. https://doi.org/10.1016/j.paid.2005.02.026.