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Studying the longest ‘legal’ U.S. same-sex couples: A case of lessons learned

Esther D. Rothblum^{a,b}, Kimberly F. Balsam^c, Ellen D. B. Riggle^d, Sharon S. Rostosky^e, and Robert E. Wickham^c

^aWomens Studies, San Diego State University, San Diego, California; ^bWilliams Institute, UCLA School of Law, Los Angeles, California; ^cPsychology, Palo Alto University, Palo Alto, California; ^dPolitical Science, Gender and Womens Studies, University of Kentucky, Lexington, Kentucky; ^eCounseling Psychology, University of Kentucky, Lexington, Kentucky

ABSTRACT

We review methodological opportunities and lessons learned in conducting a longitudinal, prospective study of same-sex couples with civil unions, recruited from a population-based sample, who were compared with same-sex couples in their friendship circle who did not have civil unions, and heterosexual married siblings and their spouse. At Time 1 (2002), Vermont was the only US state to provide legal recognition similar to marriage to same-sex couples; couples came from other US states and other countries to obtain a civil union. At Time 2 (2005), only one US state had legalized same-sex marriage, and at Time 3 (2013) about half of US states had legalized same-sex marriage, some within weeks of the onset of the Time 3 study. Opportunities included sampling legalized same-sex relationships from a population; the use of heterosexual married couples and same-sex couples not in legalized relationships as comparison samples from within the same social network; comparisons between sexual minority and heterosexual women and men with and without children; improvements in statistical methods for non-independence of data and missing data; and the use of mixed methodologies. Lessons learned included obtaining funding, locating participants over time as technologies changed, and on-going shifts in marriage laws during the study.

KEYWORDS

Civil unions; same-sex marriage; gay father; lesbian mother; same-sex partner

The legal landscape for same-sex couple relationships has changed dramatically over the past 20 years. In July 2000, Vermont became the first state in the United States to legally recognize same-sex relationships in the form of civil unions. At that time, no nation had legalized same-sex marriage, although a few countries (e.g., Denmark, the Netherlands, France) legally recognized registered domestic partnerships. Same-sex couples came to Vermont from all over the United States (and a few other countries) to be united in civil unions. The legislation attracted the attention of the media and policymakers from other US states seeking more information from Vermont lawmakers. Common questions included how many male and female couples were obtaining civil unions, what was the demographic profile of the couples and how they compared to heterosexual married couples. The need to document this landmark change in legal recognition motivated the researchers to launch a project to examine the lives of these first civil union couples. The project, which subsequently evolved into a longitudinal study spanning over a decade, sought to understand same-sex couple relationships in a socio-political context that continued to change rapidly.

Launching the CUPPLES project

When the Civil Union Participants Project—Enhanced Study (CUPPLES) began, Esther Rothblum was on the faculty and Kimberly Balsam was a graduate student at the University of Vermont. Along with another faculty member (Sondra Solomon, deceased 2015), Rothblum and Balsam met with Vermont legislator William Lippert, who was responsible for introducing the new law. The decision was made to focus on the first year (mid-2000 to mid-2001) in which civil unions were available, with the study conducted in 2002 using information on couples who had obtained civil unions during the 12-month period of July 1, 2000 to June 30, 2001.

The original focus was to compare male and female same-sex couples¹ who had civil unions during the first year of the Vermont legislation with a sample of heterosexual, married siblings of the civil union couples and their spouses, and with male and female same-sex couples in the friendship circles of civil union couples who did not have civil unions. In many ways, the study was exploratory, given that it was the first to focus on legalized relationships for same-sex couples. We compared the six groups (men and women, respectively, who were in civil unions, not in civil unions, or heterosexually married) on demographics; relationship factors (length of the relationship, sex, monogamy); having or raising children; division of housework, childcare, and finances; contact with and perceived support from family of origin; and (for same-sex couples) degree of outness. (Table 1 provides an overview of reported results.)

Another unique aspect of the CUPPLES project is that it was the first study of same-sex couples to compare a sample of participants (the civil union couples responding to the survey) to the whole possible population (all same-sex couples obtaining a civil union during a 12-month period) to determine the representativeness of the sample. We found that the sample was identical to the population on gender ratio (2/3 were women), race/ethnicity (10% were people of color), and the ranked order of geographic location (the greatest number of civil union couples, 21%, were from Vermont, followed by those from New York, Massachusetts, California, Florida, Pennsylvania, and Texas). Similar to the population we sampled, participants were overwhelmingly White (over 90%).

Conducting longitudinal research within a changing legal landscape

Umberson, Thomeer, Kroeger, Lodge, and Xu (2015) reviewed advantages and disadvantages of conducting research on same-sex relationships, including challenges in sample size, recruitment, comparison groups, and parenting status at a time of changing legal status for same-sex couples. The purpose of this article is to provide a case example of some of the lessons we learned while studying same-sex relationships. We detail specific methodological challenges encountered during the longitudinal study of a sample of pioneers who have crossed the landscape of legal relationship recognition from civil unions to civil marriage. We share this case example and the lessons learned to provide guidance and inspire future researchers as they face the unexpected challenges that inevitably arise in conducting cutting-edge research on sexual minority populations, including same-sex couples.

When the CUPPLES project began, we could not have anticipated the profound social and legal changes for same-sex couples in the ensuing years. Whereas all longitudinal research is challenging, this study had the additional challenge of occurring within the context of dramatic and rapid socio-political change. In addition to this unique backdrop, we also faced the inherent challenges that come with research focusing on a stigmatized population and research that includes the perspectives of both members of a couple. In the following, we describe our approach to addressing challenges of sampling same-sex legalized relationships from a unique population, and heterosexual married couples and same-sex couples not in legalized relationships; comparing same-sex and heterosexual women and men with and without children; addressing statistical

Table 1. Overview of findings from articles published using the CUPPLES Study data.

Time 1 Articles and Findings	
Solomon et al., 2004, 2005	<p>Women in same-sex couples reported higher levels than women in heterosexual couples on: Educational level Sharing housework with partner Sharing finances with partner Sharing childcare with partner Employed full time</p> <p>Women in heterosexual couples reported higher levels than women in same-sex couples on: Attending religious services Having children Length of current relationship Frequency of sex Perceived social support from family Contact with mother and in-laws</p> <p>No differences among women on: Income Conflict</p> <p>Men in same-sex couples reported higher levels than men in heterosexual couples on: Urbanicity Perceived social support from friends Sharing some housework tasks with partner Sharing some finances with partner Non-monogamy</p> <p>Men in heterosexual couples reported higher levels than men in same-sex couples on: Importance of religion Having children Length of current relationship Initiating contact with spouse's parents</p> <p>No differences among men on: Educational level Income Conflict Doing childcare</p>
Henehan et al., 2007	<p>Mothers in same-sex relationships: 37% had a child from their current relationship Had less contact with family of origin than heterosexual mothers Reached all milestones in the coming out process 3–5 years later than non-mothers Mothers who had children before coming out reached milestones 4–8 years later than mothers who had children after coming out</p> <p>Fathers in same-sex relationships: 28% had a child from their current relationship Reached most milestones in the coming out process 2.5–4 years later than non-fathers</p>
Rothblum, Balsam, and Solomon, 2011a	<p>Narrative themes of civil union couples – For most couples, their civil union increased: Acceptance by family and friends Psychological wellbeing Tangible benefits</p> <p>For some couples, their civil union did not affect: Tangible benefits Acceptance by family or society Quality of their relationship</p>
Time 2 Articles and Findings	
Balsam et al., 2008	<p>Same-sex couples not in civil unions (9.3%) more likely to have dissolved their relationship than same-sex civil union couples (3.8%) or heterosexual married couples (2.7%).</p> <p>Women in same-sex couples reported higher levels than women in heterosexual couples on: Relationship quality</p>

(continued)

Table 1. Continued.

Time 1 Articles and Findings

	<p>Compatibility Intimacy Women in heterosexual couples reported higher levels than women in same-sex couples on: Ineffective arguing Negative problem solving Partner withdrawal during conflict Self withdrawal during conflict Men in same-sex couples reported higher levels than men in heterosexual couples on: Relationship quality Compatibility Intimacy Men in heterosexual couples reported higher levels than men in same-sex couples on: Ineffective arguing Negative problem solving Partner withdrawal during conflict Self withdrawal during conflict Factors at Time 1 predicted relationship quality at Time 2: For women in same-sex couples, having more sex and less conflict For men in same-sex couples, being in a shorter-term relationship, having less conflict, and being more out Narrative themes of civil union couples – For most couples, the civil union increased: Tangible benefits Acceptance by family Acceptance by religious organization Quality of their relationship For some couples, the civil union did not affect: Acceptance by family or society Quality of their relationship</p>
Rothblum, Balsam, and Solomon, 2011b	
	<p>Time 3 Articles and Findings Riggle et al., 2017</p> <p>Same-sex couples who were married reported: Higher levels of support from partner LGB identity was more central to them Same-sex couples who lived in a U.S. state with legal marriage reported: Less concealment of LGB identity Easier time accepting their LGB identity Less vigilant Less isolated</p>
Rostosky et al., 2016	<p>Reasons why same-sex couples married: Legal protection and security Social validation As a political act</p>
Riggle et al., 2016	<p>Reasons for same-sex couples' relationship longevity: Communication Similarity in values Complementary similarities and differences Shared experiences Commitment to the relationship Support from others</p>
Clark et al., 2015	<p>Reactions to <i>Windsor and Perry</i> U. S. Supreme Court decisions – Themes for respondents from same-sex couples: Advancement of rights Relief and celebration Affirmation of their relationship Practical consequences Minority stress due to anticipation of future prejudice or discrimination Themes for respondents from heterosexual couples: Ally support Support without emotion</p>

(continued)

Table 1. Continued.

Time 1 Articles and Findings

Richards et al., 2017	Indifference or ignorance Disapproval of the decision Heterosexual parents more likely than same-sex parents to report that adult children: Were born via sex with current partner Have a formal religion Have more contact with them No differences between children of same-sex and heterosexual parents on: Age of child Educational level Employment
Rothblum, Balsam, and Wickham, 2018	Butch and femme women tended to pair with each other, and androgynous women with androgynous women– Femme women reported: More relationship autonomy More negative dimensions of LGB identity Women with femme partners reported: Higher income Fewer hours of housework Stronger endorsement of heteronormative attitudes Stronger endorsement of heteronormative attitudes Lower levels of outness
Wickham et al., 2016	Accuracy of perceptions of partners in conflict resolution – Heterosexual women were more likely than heterosexual men and same-sex couples to report: Withdrawal during conflict Positive problem solving Overestimate their partner's withdrawal behavior Underestimate their partner's positive problem solving behavior
Balsam, Rothblum, and Wickham, 2017	Relationship dissolution rate by couple type: 14.5% of male-male couples 18.8% of heterosexual married couples 29.0% of female-female couples Time 1 and 2 predictors of relationship dissolutions at Time 3 for all types of couples: Younger age Relationship of shorter duration Lower relationship quality Time 1 and 2 predictors of relationship dissolutions at Time 3 for female-female couples: Lower educational level More perceived support from friends
Balsam, Rostosky, and Riggle, 2017	Themes from interviews with female same-sex couple members who dissolved their relationship: Relationship dissatisfaction Stressful life events Shame and guilt Sense of failure Isolation and lack of support Financial costs of breaking up a marriage or civil union

challenges related to nonindependence of data and missing data; and incorporating mixed methodologies. We also describe lessons related to obtaining funding support, locating participants over time as technologies change, and measuring ongoing changes in the legal status of same-sex marriage during the course of the study.

Although the study began as a cross-sectional sample, changes in legalization of same-sex relationships in the United States and some other countries in the years during the study caused us to wonder how couples in our study were affected. We conducted a 3-year follow-up study (Time 2) in 2004. At that time, California had legalized domestic partnerships and San Francisco had

legalized same-sex marriage (which a judge ruled invalid one month later). Massachusetts had become the first US state to legalize marriage, but initially only for residents of that state. Both the Netherlands and some provinces of Canada had also legalized same-sex marriage. For most US same-sex couples, marriage was still difficult to obtain, and if they did marry it was not recognized in their state of residence. In addition to many of our measures from Time 1, we included measures of relationship quality and conflict, using factors at Time 1 to predict relationship quality at Time 2. (An overview of reported results is included in [Table 1](#).)

In 2013, 12 years after the Time 1 data collection, 12 US states and the District of Columbia had legalized same-sex marriage and 19 US states had civil unions or domestic partnerships. An increasing number of other countries had legalized same-sex marriage. Within weeks of the 2013 US Supreme Court rulings *U.S. v Windsor* (570 U.S. 307) and *Hollingsworth v Perry* (570 U.S. 399), additional US states legalized same-sex marriage. These legal changes took place simultaneously with the Time 3 data collection, prompting us to add new items and questions at the last minute to capture participants' perspectives on socio-political developments. We also added questions about adult children, as well as quantitative measures and qualitative prompts about their relationship, well-being, and perspectives on same-sex marriage. Prior data allowed examination of factors at Times 1 and 2 that predicted relationship dissolution at Time 3. ([Table 1](#) has an overview of reported results.)

Using novel control groups allows comparisons with heterosexual married couples and same-sex couples not in legal relationships

Vermont civil unions were designed to be legally equivalent to heterosexual marriage in Vermont (the status was rarely recognized in other states and was not recognized at the federal level), so we anticipated that the media and policymakers would want to know how our sample compared with heterosexual married couples. Although we could have compared civil union couples to heterosexual married newlyweds from the same year, the latter group would be much younger, have a relationship of shorter duration, and would mostly be Vermont residents.

Finding appropriate comparison samples of heterosexuals for samples of lesbian, gay, bisexual, and transgender (LGBT) samples is not simple. Past research often recruited LGBT samples via announcements on LGBT listservs, subscriber lists of LGBT magazines or newsletters, flyers at bars or bookstores, or distribution of questionnaires at Pride marches (e.g., Bradford, Ryan, & Rothblum, 1994; Laumann, Gagnon, Michael, & Michaels, 1994). This recruitment strategy yielded hundreds of participants, but no heterosexual comparison group; there were no comparable general heterosexual listservs, organizations, or festivals to draw a comparison sample from. Conversely, most mainstream research with heterosexual samples included very few LGBT participants. Studies typically found LGBT samples to be more urban, highly educated, and less religious than heterosexual comparison samples, but it was impossible to know if these demographic differences reflected the populations or were the result of differences in recruiting sources.

The CUPPLES project addressed this longstanding problem by asking civil union participants to provide contact information for a heterosexual married sibling and his/her spouse. Siblings are typically comparable in race, ethnicity, age cohort, parental socioeconomic status, and religion in childhood, and we have used this method in earlier studies on lesbian and bisexual women compared with their heterosexual sisters (Rothblum & Factor, 2001); LGBs compared with heterosexual brothers and sisters (Rothblum, Balsam, & Mickey, 2004); and trans women, trans men, and genderqueer individuals compared with cisgender brothers and sisters (Factor & Rothblum, 2007). Although some LGB² participants did not have a heterosexual married sibling (i.e., some participants are only children, out of touch with siblings, have deceased siblings, or only have siblings who identify as LGB), the likelihood that at least one member of a couple had a heterosexual married sibling was high. Our prior research comparing LGBs to heterosexual siblings found

that LGBs were less likely to have children, less religious, more highly educated (in the case of lesbian and bisexual women), and more urban (in the case of gay men; Rothblum et al., 2004), so we expected similar demographic differences in the CUPPLES sample.

Another central aim of the CUPPLES project was to compare civil union couples to same-sex couples who did not have civil unions. Before 2000, all research on same-sex couples was based on couples who had no legal status (e.g., Kurdek, 1988, 1996, 2004). To compare whether there were any demographic differences between same-sex couples who did or did not have civil unions, civil union participants were asked for contact information for a same-sex couple in their friendship circle who did not have a civil union, thereby extending the sibling methodology to include friends as a matched comparison group. We predicted that friendship couples were likely to live in the same geographic area and to be similar in age to civil union couples.

As a result of our sampling strategy, the study had six groups: men and women, respectively, who had a civil union, did not have a civil union, and were heterosexually married. Our findings from Time 1 (Solomon, Rothblum, & Balsam, 2004) indicated that the six groups did not differ significantly on race/ethnicity, age, or religion while growing up. Women in same-sex relationships, with and without civil unions, had higher levels of education, were less religious, had been in their current relationship for a shorter duration, and were less likely to have children than were heterosexual married women. Women in same-sex couples also earned higher individual incomes than heterosexual married women, but this difference disappeared once heterosexual women homemakers (i.e., women who did not work outside the home) were excluded. The three groups of men did not differ significantly on individual income or education. Men in same-sex couples, with and without civil unions, were more likely to reside in urban areas, were less religious, had been in their current relationship for a shorter duration, and were less likely to have children than heterosexual married men.

The sibling sampling method had the disadvantage of only recruiting married siblings, thus excluding a comparison sample of heterosexual cohabiting siblings. We had no heterosexual comparison sample for same-sex couples who had not legalized their relationship, making it impossible to completely disentangle the effects of sexual orientation and legal status across all of the groups in the study.

The results of the study have supported the feasibility of using heterosexual married siblings as a comparison sample for same-sex couples in legal relationships. They also demonstrated that the demographic differences based on sexual orientation were not an artifact of recruitment method, given that similar patterns of difference were occurring even in samples that were related by family of origin. Thus, our sampling approach provided an opportunity to have comparison groups to test our hypotheses, and to highlight underlying differences between sexual minority and heterosexual populations that may be obscured by less comparable sampling approaches.

Sampling same-sex couples in civil unions allows comparison to a population

Before same-sex couples could legalize their relationship, researchers had to decide how to define who was a couple (cf. Rostosky & Riggle, 2017, for a review). Some research included couples if they had been together for at least 1 year (Porche, Purvin, & Waddell, 2005), 2 years (Gottman et al., 2003), 3 years (Schreurs & Buunk, 1996), or 5 years (Elizur & Mintzer, 2003); others had no specified length of relationship (Caron & Ulin, 1997). These criteria possibly biased findings, as Kurdek (1989) found that length of relationship is associated with relationship satisfaction among same-sex couples. Thus prior research on same-sex couples consisted of couples who would have married if permitted as well as those who would have opted not to be married. The CUPPLES project was the first opportunity to include the group of same-sex couples who had civil unions (i.e., by legal status), comparable to the vast majority of research on heterosexual couples.

One of the biggest challenges in research with sexual minority populations is sampling (c.f. Meyer & Northridge, 2007; Rothblum, 2007). A major advantage of our study was that civil union certificates, like marriage certificates, were public information and therefore accessible. The certificates contained several important variables—both participants' full names, the date and place of their birth, their sex, current mailing address, and the full name and birthplace of their mother and father. Additionally, Vermont collected information about each partner's educational level and race/ethnicity, although this information was provided in aggregated form rather than for each couple.

The Vermont Office of Vital Records of the Vermont Department of Health provided photocopies of all 2,475 certificates from the first 12-month period in which civil unions were available to same-sex couples. We have since found that US states vary widely in how and by whom information about marriage licenses is stored and thus its availability. In a study comparing civil unions in Vermont, domestic partnerships in California, and same-sex marriages in Massachusetts (Rothblum, Balsam, & Solomon, 2008), California sold a DVD with an Excel file containing all participants' contact information, whereas in Massachusetts each town recorded that information and transferred it to the secretary of the commonwealth, a process that included considerable lag time.

Our recent attempt to access marriage records from states after the US Supreme Court ruled in 2015 in *Obergefell v Hodges* that same-sex marriage is a constitutional right illustrates this difficulty. We wanted to sample same-sex couples from the 13 US states that had not legalized same-sex marriage prior to the court decision. We considered comparing couples in a Midwestern, Southwestern, and Southern state; these regions are more racially and ethnically diverse than Vermont and, unlike the recent past, couples could now be married in their local jurisdiction without traveling long distances, representing more socio-demographic diversity. When we attempted to contact the Vital Records Department of the Office of Health in more politically conservative regions, we often received no reply. Other offices told us that marriage records are kept at the county level. For example, when Esther Rothblum contacted all 75 county offices in Arkansas, only 14 county clerks replied (19%); two indicated that no same-sex couples were married in their county, two indicated that the records are kept in the capital city, and one sent a link that would necessitate entering the date of each marriage. Seven counties sent us the information (the number of couples applying to marry in those counties ranged from 1 to 11); some clerks sent a list of names; others sent copies of the certificates with some information redacted. Additionally, two clerks indicated they do not record whether same-sex couples consist of two women or two men, a necessary component for our research.

Research on sexual minorities has come a long way from reliance on small convenience samples, and it is heartening that large-scale population-based surveys now often include items about sexual identity and behavior (cf. Rothblum, 2007; Umberson et al., 2015, for a review). But population-based studies are limited by the demographics of the population itself. Given that LGB individuals are estimated to comprise only 3% to 5% of the US population, even large-scale studies often include very small numbers of LGB people, and even fewer who represent multiple marginalized identities, such as ethnic and racial minority and low-income participants. Our study represented an alternative approach, focusing on the sexual minority population by definition, yet at the same time lacking ethnic, racial, and socioeconomic diversity. Vermont itself is 97% White, and the 79% of our sample that traveled to Vermont to get a civil union had to have the resources to do so as Vermont is not centrally located in the United States. Thus, we recommend that future researchers use targeted and novel recruitment strategies to engage more inclusive samples that can be generalized to people of color and to people with fewer economic resources.

Based on our experience, we also recommend that researchers inquire early in their research process about the feasibility of obtaining marriage records from a particular state. Future researchers should keep in mind that some states are seemingly uninterested in providing data about same-sex couples, making research in those jurisdictions challenging at best. We caution that future researchers may have more, rather than less, difficulty obtaining records for same-sex couples than we encountered in the early years. For example, laws in some states providing state employees or county clerks with an exemption (based on religious beliefs) may deter researchers from obtaining information from sources where an individual in charge of the information objects to the recognition of same-sex marriages.

The CUPPLES project allows comparisons between same-sex and heterosexual parents and non-parents

Most research on parents in same-sex couples has compared sexual minority women with children to heterosexual women with children, and not to sexual minority women without children. There has been comparatively less research on sexual minority men as fathers. Our study design enabled us to compare eight groups—sexual minority women, sexual minority men, heterosexual women, and heterosexual men, with and without children, respectively (Henehan, Rothblum, Solomon, & Balsam, 2007). CUPPLES was the first study to compare these groups using matched comparison groups recruited with the same methods, thereby addressing concerns that sampling methods might confound results. One challenge, however, was that the couple types differed greatly in the percentage who had children. Over 80% of heterosexual married couples had children, compared to only 34% of female couples in civil unions, 31% of female couples not in civil unions, 18% of male couples in civil unions, and 10% of male couples not in civil unions who had children at Time 1 (Solomon et al., 2004). Consequently, we combined same-sex couples in civil unions and those not in civil unions to increase the sample size of same-sex couples with children. Based on our experience, we suggest that future researchers be mindful that population-based sampling may not yield large enough groups for some analyses and may need to be supplemented with targeted or snowball sampling.

In the same article, we also examined the ages at which sexual minority participants reached milestones in the coming-out process (e.g., thought of themselves as LGB, told someone they were LGB, had a sexual relationship with a same-sex partner; Henehan et al., 2007). Sexual minority fathers reached most milestones in the coming-out process 2.5 to 4 years later than sexual minority men without children, and sexual minority mothers reached all milestones in the coming-out process 3 to 5 years later than sexual minority women without children. Some partners in same-sex couples had children in a previous heterosexual relationship, whereas others had children with a same-sex partner. We were thus able to compare sexual minority women who had children before and after coming out, but the number of sexual minority men with children was too small for such a comparison. We found that sexual minority mothers who had children before coming out reached milestones in the coming out process 4 to 8 years later than sexual minority mothers who had children after coming out.

In our Time 3 follow-up, many participants had offspring who were adults (over age 18), allowing us to publish the first study about adult children of sexual minority and heterosexual parents recruited from a population-based sample (Richards, Rothblum, Beauchaine, & Balsam, 2017). Based on reports by the parents, adult children of same-sex and heterosexual parents were similar in educational level, full-time employment, and parent status. Adult children of same-sex parents were more likely to be adopted or conceived via methods other than intercourse with a partner, were less religious, and had less frequent contact with their parents, than were adult children of heterosexual parents, based on parents' reports.

Improvements in statistical methods allow analysis of dyads (couples) with non-independence of data and missing data

Relationship scientists have long noted that collecting data from couples (dyads) leads to a statistical dependency between responses provided by members of the same couple, which violates critical assumptions of standard statistical methods based on the general linear model (Kenny, 1996). The underlying phenomenological cause of this nonindependence in outcomes has been a topic of wide debate, and may be driven by a range of individual and macro-level factors. During the 1990s, a number of procedures were developed for use with dyadic data, utilizing mixed-effects or structural equations modeling to account for nonindependence in outcome residuals (see Kenny, Kashy, & Cook, 2006, for a review). The sampling approach used in the recruitment of same-sex couples without legally recognized unions, and heterosexual sibling couples, introduced an additional level of nesting. Although we found the interdependence was statistically negligible, we accounted for this nesting through the inclusion of an additional random intercept (Riggle, Wickham, Rostosky, Rothblum, & Balsam, 2017) or through a correction factor (Balsam, Rothblum, & Wickham, 2017).

Nearly all longitudinal studies must contend with attrition and missing data. Simulation studies have established that listwise deletion, last-observation-carried-forward, and mean-substitution methods for dealing with missing responses all result in unacceptable levels of bias (Enders, 2010; Little & Rubin, 2014). Currently recommended procedures for handling missingness involve the application of full-information maximum likelihood (FIML) estimation, or multiple imputation (MI) procedures. Under ideal conditions (i.e., conditional missing-at-random [MAR] assumption is satisfied), these methods provide unbiased and efficient estimates of the model parameters used to describe change over time or group differences, and even under suboptimal conditions (i.e., conditional MAR not satisfied) these procedures provide results that are statistically superior to the aforementioned alternatives (Enders, 2010). We conducted all statistical analyses of the CUPPLES data using FIML or MI to account for missing responses.

Collecting responses from both members of each couple provided us with the opportunity to examine more complex and nuanced aspects of same-sex and heterosexual relationships. For example, the inclusion of Kurdek's (1996) revision of the Conflict Tactics Scale (Straus, 1979), which is comprised of parallel self and partner items describing the strategies that individuals use when resolving relationship conflicts, allowed us to apply West and Kenny's (2011) truth-and-bias analysis to examine the extent to which individuals' perceptions of their partner's use of conflict resolution strategies mapped on to the partner's actual self-reported behavior. Moreover, the presence of female same-sex, male same-sex, and male and female heterosexual couple members provided a *fully crossed* design, allowing us to statistically disentangle the unique contribution of gender and sexual orientation in explaining cross-couple differences in the accuracy and bias of perceptions (Wickham et al., 2016). The results of our study found that same-sex and heterosexual married couples did not differ in their degree of perceptual accuracy in positive problem solving and in conflict withdrawal, engagement, or compliance. Heterosexual women tended to overestimate their partner's withdrawal behaviors and underestimate their partner's positive problem-solving strategies, and heterosexual couples were more likely to assume that they were similar to their partner during conflict, unlike female same-sex couples.

Increased opportunities for funding LGBT research allows expanded research

At the beginning of the 21st century, there were few options for funding a study of same-sex couples. At Times 1 and 2, we relied on small grants to cover the costs (e.g., postage, printing, and data entry) of conducting the study because federal agencies and large foundations had not yet released any program announcements for research on same-sex relationships or LGBT populations. Thus, at Time 1

we only had funding for 400 same-sex couples (800 participants) who had civil unions, as well as 400 couples who had not had civil unions, and 400 heterosexual married couples. Of the 2,475 same-sex couples who had civil unions in Vermont that first year, 165 addresses came back as incorrect, and eight couples were friends or students of the research team and were excluded. Of the 2,302 remaining couples, an astounding 41% (947 couples) consented to participate. Thus, due to funding limitations, we were forced to exclude more than half of willing participants.

Along with the other major socio-political changes paralleling our study, the funding landscape for LGBT research has changed, with annual National Institutes of Health (NIH) grant awards focused on sexual and gender minorities more than doubling from 2000 to 2011 (Coulter, Kenst, Bowen, & Scout, 2014). By Time 3, NIH had issued LGBT-focused or inclusive program announcements for nearly a decade. We wrote and submitted a grant to the Eunice Kennedy Shriver National Institute of Child Health and Human Development to expand our research and collect a third wave of data. By that time, Kimberly Balsam had established herself as a recipient of two LGBT-focused training grants from NIH, a career path that would have been unlikely even a decade earlier. We capitalized on the novelty of our project and the possibilities for expansion a grant would provide. In the grant proposal, we highlighted the longevity of the working relationships among team members, including prior collaborations with new researchers on the study team. We also emphasized the timeliness of the topic that mirrored the increased visibility of LGBT issues in the media, public policy, and health research and practice. We framed ongoing data collection efforts from an existing panel of participants as a “sure bet” for potential funders to invest in.

Having a large NIH grant created many opportunities for us as researchers. We were able to hire a project coordinator, who could devote time to the enormous task of locating participants after a decade of no contact. Whereas participants had previously volunteered their time, at Time 3, we could pay participants for the first time (\$50 per individual) and consequently, we surmised, the survey could include more measures. Funding allowed us to include mixed methods by including monetary incentives for couples to participate in in-depth qualitative interviews. The grant also partially funded members of the research team to devote time to conceptualization and implementation of the quantitative and qualitative studies, and enabled us to fund additional investigators with expertise in advanced qualitative (Ellen Riggle and Sharon Rostosky) and quantitative (Theodore Beauchaine for Time 2, Robert Wickham for Time 3) approaches.

By 2015, as we concluded our data collection efforts at Time 3, NIH was funding a robust portfolio of LGBT research and had established the Sexual and Gender Minority Research Office (SGMRO) to coordinate research throughout NIH. However, trends toward decreased federal funding for health research overall, combined with the political backlash against LGBT rights that followed marriage equality and the 2016 election, leave the future of such funding uncertain for studies of same-sex couples and LGBT populations. In changing times, it is important for researchers to employ methodologies that can be managed within limited financial resources. Our earlier work demonstrates that a patchwork of small foundation and university grants can provide support for ambitious studies, especially when volunteer participants are motivated by the possibility of having their marginalized voices heard on topics that are relevant to their lives and understudied.

Adapting to changing technology allows retention of participants over time

In addition to widespread and continual changes in LGBT rights, our study has spanned a time of dramatic change in technologies that are available and used by individuals. At Time 1 in 2002, only 50% of US households had Internet access, a percentage that increased to 72% by Time 3 in 2013 (Pew Research Center, 2018). In 2002, people accessed the Internet primarily via personal computers with dial-up modems; by 2013 smartphones and tablets with data plans were in wide

use. Additionally, by 2013, online information about individuals, including their addresses and contact information, was widely available. Against the backdrop of these dramatic changes, by Time 3 we assumed that changes in technology would make locating participants much easier than at Time 2. This assumption was overly optimistic. We discovered that many people, even in 2013, did not have any easily identified electronic footprint, and that information was unevenly distributed according to other demographic differences of our participants. For example, those who owned property or who held visible professional positions were more likely to have their information readily available. We tried online fee-based people-finding services, but these did not yield additional information beyond our own searches. Most search tools, free or paid, did not distinguish the past from the present (for example, when we used these tools to search for ourselves, some of them turned up old home addresses or emails from a decade earlier).

We used search engines that we felt were more accurate to seek information about participants. We searched for each participant's name, town, and zip code in whitepages.com. We looked for associations with their partner or spouse of 2001 and entered the names of both couple members. We sometimes found leads about where someone worked, if they donated money, bought a house, ran a marathon, had a website, or attended a funeral of a family member. The searches were not linear; we approached the task as a puzzle of information, and followed all leads to build a narrative about an individual or couple. Our goal was to discover a current home address or private email. We ignored work addresses or emails because employees may not have privacy via these sources; this decision made it more difficult to locate many of our participants.

Some factors made people easier to find. Home and property ownership records are public information, and so are some types of charitable donations. Sometimes school history (where participants attended high school or college) can verify identity. Participants employed by universities typically have websites with contact information. High-profile members of LGBT or other communities often have a deliberate online presence. Given the unequal visibility, there is potentially a sampling bias in who can be located via technology and who cannot, impacting the results of longitudinal research.

Other concerns among the research team arose as we engaged the technological tools of 2013 to recruit participants for Time 3. We worried that we were learning too much information about participants when finding information online, although all information was accessible via use of normal online search engines. In our searches, we found family photographs, long obituaries with family histories, and notices of home foreclosure. We wondered about participants' comfort level if they knew how much information was accessible online, and how they would feel toward us as researchers having read all of this. We did not disclose to participants that we had read information online and we did not use any of the discovered information in our study.

In addition to changes in technology, a major opportunity of our unique sampling strategy was the linked nature of participants in different categories. Thus, we could ask civil union couples for the whereabouts of their friends and siblings, and we could also ask friends and siblings about the current location of the original civil union couples. We obtained many addresses and emails this way when these could not otherwise be found online. At times, participants would inform us that they had lost touch with their friends, knew the couple had dissolved their relationship, or that one of the partners had died. Interestingly, participants who were hard to find online also had friends and siblings who were difficult to find, as well.

Our methods of locating participants created a challenge that is common to longitudinal projects. When a mailed letter was returned as undeliverable, or an email was returned as incorrect, we knew that we had not reached that respondent. But we had no way of knowing whether all other letters and emails had reached couples unless those couples replied to us. Many couples who did not reply may have moved or changed email addresses, so they would not have known about the second or third wave of data collection. These circumstances make it difficult to

determine our response rate because of uncertainty about how many couples received but did not respond to our mailings.

Based on our experience, we urge future researchers to anticipate that participants in longitudinal studies will be difficult to locate. Changes in technology do not necessarily translate to improvements in locating participants and retention. Building in multiple retention strategies to stay in touch with participants and their social networks can aid researchers in such efforts.

Incorporating evolving assessment tools allows improvement of quantitative measures and qualitative approaches

In addition to demographic variables comparing the three types of couples, we wanted to compare our sample on standardized measures used by other researchers in studies of same-sex couples. A landmark study by Blumstein and Schwartz (1983) compared 12,000 couples, including 788 lesbian and 969 gay male couples. Consequently we used several of their survey items and measures at Time 1, such as division of housework, childcare, and finances; relationship maintenance behaviors; conflict; sex and monogamy; contact with family of origin; leisure activities; and thoughts about ending the relationship. Some of these measures bore the limitations of all single items. Nevertheless, we found that same-sex couples tended to divide housework, childcare, and finances more equally, whereas heterosexual women did more housework and childcare, and heterosexual men paid for more items (Solomon, Rothblum, & Balsam, 2005). Among heterosexual couples, gender is confounded with income (i.e., it is hard to know if women do more domestic labor due to gender role socialization or because they have less power due to earning less money). Our study was able to examine the relative salience of sexual orientation versus income and found that sexual orientation was a stronger prediction of division of labor than was income difference between partners (Solomon et al., 2005). That is, same-sex couples tended to divide housework, childcare, and finances more equally even when one partner earned a much higher income; that was not the case in heterosexual couples.

We added measures of perceived social support from family and friends to the CUPPLES project at Time 1, finding that same-sex couples had less contact with their family of origin and sexual minority women perceived less support from their family of origin than did heterosexual married women. At Time 2 we reassessed couples on many of these Time 1 measures, and added standardized scales on relationship quality, including relationship satisfaction; commitment; intimacy, equality, and autonomy; ineffective arguing; and conflict resolution styles (Balsam, Beauchaine, Rothblum, & Solomon, 2008). Many of these measures were from the longitudinal research of Kurdek (1988, 1989, 1992, 1993, 1994, 1996, 2004), who studied same-sex couples before legalized relationships existed. We found that same-sex couples at Time 2 (whether or not they had had a civil union at Time 1) reported higher levels of compatibility and intimacy, and lower levels of ineffective arguing, negative problem solving, partner withdrawal in conflict, and self-withdrawal in conflict, than did heterosexual married couples.

At Time 3 we again reassessed participants on many of these measures. We also included measures of mental health, perceived stress, recent life changes, community connectedness, coping styles, and well-being, and, for same-sex couples, heteronormative attitudes and beliefs, LGB identity, and minority stress. For couples who had terminated their relationship, we collected measures of relationship dissolution and distress (Balsam, Rostosky, & Riggle, 2017). We found that female couples (29.3%) were more likely to have dissolved their relationship by Time 3 than male couples (14.5%) or heterosexual married couples (18.6%). Factors predicting dissolution for all three types of couples at Time 3 included being younger and in a relationship of shorter duration at Time 1, and reporting lower relationship quality at Time 2.

Quantitative surveys often include an item asking respondents to write in additional comments. Our Time 1 survey ended with, "Your comments and feedback are greatly appreciated.

Please write any additional comments, suggestions, etc. here. Thank you for your help with this project!” Analyses of responses to this open-ended item (Rothblum, Balsam, & Solomon, 2011a) revealed valuable information for use in subsequent waves of the study. We recommend that future researchers include an open-ended text box for comments when conducting research on a population that is novel (in this case, same-sex couples in legalized relationships) to give participants the opportunity to describe their experiences in their own words.

Given feedback from Time 1, at Time 2 we asked participants to reflect on their relationship. The mailed questionnaire included the following prompt, followed by a blank page (for themes obtained from the responses, see Rothblum, Balsam, & Solomon, 2011b):

Before we ask you to rate specific items, we would be most interested to find out how you have seen your relationship develop in the past three years. Please focus on your civil union partner of 2001; if you are no longer in that relationship, let us know about the break-up. We would be interested in your own experiences about the relationship. If you have children, how has the relationship affected them? How do people perceive you now as a couple? These are just suggestions—we are looking forward to reading about your relationship in your own words!

Although such prompts yielded interesting and important information, they are inherently limited by the lack of follow-up questions and ongoing dialog. Thus, at Time 3 we conducted in-depth, semistructured qualitative interviews enabling us to speak with participants via phone or video chat for the first time. Interview prompts were developed in response to findings from Times 1 and 2 and preliminary data analysis from Time 3, with the goal of elucidating findings and bringing to life their individual stories. We decided to interview 30 same-sex couples jointly via a web-based program (with video/audio or just audio, depending on the choice of the participants), recording and having the interviews transcribed, and then thematically analyzing the transcriptions. We also interviewed 30 individuals who had terminated their relationship (one member per couple). The interviews focused on changes in relationships (for couples who had civil unions and those who subsequently were married; Riggle et al., 2017), how legalizing their relationship impacted family members, friends, coworkers, and members of their community (Rostosky, Riggle, Rothblum, & Balsam, 2016); how couples in same-sex relationship described the success of their relationship (Riggle, Rothblum, Rostosky, Clark, & Balsam, 2016); and, for participants who had terminated their relationship, perceptions of reasons for the dissolution of the relationship (Balsam, Rostosky, & Riggle, 2017).

Changes in technology now allow for higher-quality video recording and also better security to protect audio and video recording. There are reasonably-priced professional transcription services available, although we are still waiting for high-quality voice recognition software that would allow instant transcription of interviews without the necessity of paying transcribers.

Sudden legal changes during data collection present a challenge

As we planned to begin our third wave of surveys in the summer of 2013, the US Supreme Court ruled on *U.S. v Windsor* (570 U.S. 307) and *Hollingsworth v Perry* (570 U.S. 399). We submitted an IRB modification at the last minute to include the following prompt about marriage equality: “Please tell us anything you would like us to know about your reactions to the Supreme Court decisions on June 26, 2013 regarding same-sex marriage” (Clark, Riggle, Rostosky, Rothblum, & Balsam, 2015). The prompt allowed us to collect qualitative data on the most recent changes in the law and its immediate effects on the feelings and perceptions of same-sex couples and heterosexual married couples recruited via siblings.

Within weeks of the 2013 US Supreme Court ruling, a number of US states legalized same-sex marriage. Consequently we had couples who could not marry in their state of residence when they completed the quantitative survey, but had married in their home state by the time we contacted them for the qualitative interview just a few months later. This rapidly changing legal

landscape presented a challenge in the midst of data collection, because the numbers of same-sex couples who were married differed between the quantitative and qualitative data sets. Conducting between-groups analyses that compare people on a variable (e.g., having recognized legal relationship status) that is constantly changing highlights the importance of context in interpreting research findings.

The lesson we learned during this changing legal landscape was to collect waves of data in as short a time span as possible, to minimize changes in the macro level context of participants during the data-collection period. For researchers studying LGBT issues, it is necessary to keep careful track of when a participant responds to a survey, and the political, legal, and cultural events that may affect the lives of participants and their responses. For example, it is possible that some US states might attempt to eliminate same-sex marriage and other civil rights during the current conservative administration, resulting in legal changes in the midst of a data collection.

Evolution of the research team and challenges for future research

Nanette Gartrell, who has conducted the longest prospective study of lesbians with children conceived via donor insemination (cf. Gartrell, Bos, & Koh, 2018), visited Vermont in 2000, the first year of the civil union legislation. She suggested to Sondra Solomon and Esther Rothblum that they study the first cohort of civil union couples; Esther was hesitant to begin this project because she had never before studied couples or conducted longitudinal research, but Sondra was enthusiastic. Kimberly Balsam joined the team while a graduate student and is now principal investigator of the CUPPLES project. For Time 3, we added Sharon Rostosky and Ellen Riggle because of their expertise on qualitative research and conducting interviews with same-sex couples, and expertise on the impact of laws and legal recognition of same-sex relationships and marriage. Their backgrounds in counseling psychology and political science, respectively, added to the multidisciplinary perspectives of the study. Theodore Beauchaine joined the team at Time 2 and Robert Wickham at Time 3 as new statistical methods required their expertise. When Sondra Solomon, who was African American, died before Time 3 of the study, the remaining project team was all White. By Time 3, Kimberly Balsam, Esther Rothblum, and Robert Wickham were living in California; Sharon Rostosky and Ellen Riggle were in Kentucky. At that time, Kentucky had a same-sex marriage ban and California had legalized domestic partnerships and later same-sex marriage. This difference in legal context reflected the experiences of our participants.

One of the lessons we draw from CUPPLES is the salience of sexual orientation in understanding the lives and experiences of individuals in intimate relationships. The overall picture is that same-sex couples in our sample shared many important experiences and characteristics with the heterosexual married couples recruited via siblings, and yet, with or without legal status, their experiences were different in important ways (Balsam et al., 2008; Solomon et al., 2004, 2005). The CUPPLES cohort is now age 62 on average, and will soon become elderly; this life stage is an area of research that has been neglected in relationship science, especially for same-sex couples.

Although our sample is relatively homogenous in identifying as LGB, research with younger samples is also of great importance, especially as language about sexual identities changes. Furthermore, as our understanding of gender as a nonbinary construct has evolved, more people are coming out as transgender or gender nonbinary, so the concept *same-sex couple* no longer accurately applies to many LGBT couples. Future research should include categories such as gender nonbinary, genderqueer, pansexual, and asexual to accurately capture the diversity of lived experiences of LGBT people in intimate partnerships and legal relationships.

The CUPPLES project is ongoing, a work in progress. We plan to continue research with our sample of same-sex and heterosexual couples, and hope that our experiences with methodological issues and the lessons we have learned will be useful to other researchers as the political and

social landscape continues to shift. Ongoing research, especially with longitudinal designs, is needed as the availability of same-sex marriage is relatively recent in the United States, and LGBT people are still subject to structural and interpersonal discrimination and stigma. For example, the current socio-political context includes both progress and backlash, with laws and policies including protections for LGBT people in some states, and laws and policies denying protections in other states. All of these changes will impact the couples in our study as well as all LGBT people, same-sex couples, and especially young people coming of age in this era. Thus, results of our ongoing research efforts hold the potential to provide valuable data that will inform researchers and clinicians, policy makers, the general public, the LGBT community, and the couples themselves.

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Notes

1. The Vermont civil union certificates ask about “sex” and on the CUPPLES survey we ask participants “are you” __male __female” and later “are you transgender.” Thus we refer to “same-sex couples” rather than “same-gender couples.”
2. At Time 1 none of the CUPPLES project participants identified as transgender so we use only the acronym LGB when specifically referring to our sample. By Time 3 one participant identified as butch/ non-binary.

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