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*Descriptive Finding*

**Do same-sex unions dissolve more often than different-sex unions? Methodological insights from Colombian data on sexual behavior**

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## **Do same-sex unions dissolve more often than different-sex unions? Methodological insights from Colombian data on sexual behavior**

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### **Abstract**

#### **BACKGROUND**

Conclusions about differences in union dissolution rates between same-sex couples and different-sex couples vary across studies and countries. Previous research identifies same-sex couples solely using information on the sex of partners.

#### **OBJECTIVE**

To investigate how the measures used to identify same-sex couples affect conclusions regarding differences in dissolution rates between different-sex and same-sex unions in the stigmatized context of Colombia.

#### **METHODS**

We use rich retrospective data from the Colombian DHS 2015 on the duration of 63,462 unions, including 1,051 same-sex unions. An important feature of this survey is that respondents are also asked about their sexual behavior.

#### **RESULTS**

Similar to previous studies on the United States, estimates solely based on the reported sex of partners show that cohabiting same-sex couples are as likely to separate as cohabiting different-sex couples in Colombia. However, excluding same-sex unions of persons who reported never having had sex with someone of the same sex, same-sex unions are considerably more likely to end in separation than different-sex unions.

#### **CONCLUSIONS**

The same-sex unions of persons who report having had sex with someone of the same sex are more likely to end in separation than different-sex unions in Colombia.

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## **CONTRIBUTION**

We show how substantive conclusions about the relative stability of same-sex unions depend on how same-sex unions are identified. To reduce the influence of possible miscoding on conclusions we recommend combining various measures to identify same-sex unions.

## **1. Introduction**

Are the unions of same-sex couples more likely to end in separation than those of different-sex couples? Previous research provides inconclusive answers, and these might differ depending on the country studied. In the United States (Manning, Brown, and Stykes 2016) and Taiwan (Lin, Yu, and Su 2019), there are no notable differences in the dissolution rates of same-sex and different-sex cohabiting unions. At the same time, same-sex unions are relatively more likely to dissolve than different-sex cohabiting unions in countries such as the Netherlands (Kalmijn, Loeve, and Manting 2007) and the United Kingdom (Lau 2012). Differences in union stability could arise because of the stress that same-sex couples experience due to stigma and discrimination (Boertien and Vignoli 2020; Fischer, Kalmijn, and Steinmetz 2016; Frost et al. 2017) and the obstacles same-sex couples face to making common investments (Lau 2012). Hence, differences in union stability might be especially pronounced in contexts with high stigma towards sexual minorities. In this article we contribute to this body of literature by comparing the union dissolution rates of different-sex and same-sex unions in the high-stigma context of Colombia.

Current research is not easily aligned with the expectation of smaller differences between union types in contexts with lower stigma. The countries where no differences in union dissolution are found, the United States and Taiwan, have relatively unfavorable attitudes towards sexual minorities as compared to other countries studied (Adamczyk and Liao 2019). Similarly, given declining institutional discrimination (Trandafir 2015), ever more approving attitudes toward same-sex couples (Rosenfeld 2017), and increasing access to parenthood for same-sex couples (Moore and Stambolis-Ruhstorfer 2013), one would expect the dissolution rates of same-sex unions to converge with those of different-sex unions over time. However, Lau (2012) finds no changes over time in the relative stability of same-sex unions across two British birth cohorts. Wiik and colleagues (2014) observe the same for registered partnerships and same-sex marriages in Norway. Kolk and Andersson (2020) do find that the dissolution rates of same-sex marriages converges with the stability of different-sex marriages in Sweden over time, but this might also reflect changes in who marries.

There are various reasons why the hypothesis of smaller observed differences in less stigmatized contexts might not hold. Lau (2012) suggested that older cohorts of same-sex couples might have been particularly committed to overcoming the obstacles to couple life experienced by sexual minorities. Another possibility consists of measurement issues. Previous research on the topic has identified same-sex unions by combining information on household members' sex with information on the relationship between household members (e.g., Manning, Brown, and Stykes 2016) or by using questions on the sex of current and former partners (e.g., Lau 2012). It has been documented that relatively uncommon and unintended mistakes in how sex or relationship variables are reported or coded can lead to the coding of different-sex couples as same-sex couples, and vice versa (Cheng and Powell 2015; Festy 2007; Gates and Brown 2015; Lau 2012; Watkins 2018). Even though these miscoded cases are small in number as a share of different-sex couples, they are large in number as compared to the number of same-sex couples. Lau (2012: 978) exploited a feature of the British NCDS 1958 cohort study where relationship histories were collected twice in one wave. Only 22% of same-sex unions were reported consistently on both occasions. When same-sex unions become more common, the relative weight of 'miscoded'<sup>3</sup> unions will decrease. Absent other changes, this will allow for greater differences in dissolution rates to emerge between same-sex and different-sex unions in contexts where same-sex unions are more common.

In this article we aim to contribute to research on this topic by documenting differences in union dissolution in Colombia, a context with high stigma towards sexual minorities. Despite legalizing same-sex marriage in 2016, a Gallup (2018) poll from June 2018 still indicated that 56% of the Colombian population was against same-sex marriage. Similarly, in the most recent waves of the World Value Survey around 40% of Colombians reported they did not want to have homosexual neighbors, compared to around 22% in the United States, 17% in the United Kingdom, and 5% in the Netherlands and Norway (Adamczyk and Liao 2019). Given these characteristics of the Colombian context, we would expect large differences in union stability between different-sex and same-sex couples if the hypothesis holds that differences between union types are most pronounced in high-stigma contexts. If measurement issues are influential or if same-sex couples in high-stigma contexts are particularly committed, few differences across union-types are expected to be found. An important contribution we aim to make is to use additional information on sexual behavior to test to what extent the way in which same-sex unions are identified can affect conclusions regarding the relative stability of same-sex and different-sex unions.

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<sup>3</sup> Note that we refer to unintended reporting or coding mistakes that arise at the moment of data collection.

## 2. Data and method

Data comes from the “Encuesta Nacional de Demografía y Salud 2015”, a representative survey of the Colombian population part of the Demographic and Health Surveys (DHS) (Profamilia, y Ministerio de Salud y Protección Social 2017b). The data includes 38,718 women aged 15–49 and 35,783 men aged 15–59. Response rates are 74% for women and 64% for men (Profamilia, y Ministerio de Salud y Protección Social 2017a: 637). Respondents retrospectively reported on the starting and ending dates of the current union and up to five past unions. We exclude 34.3% of interviewed women and 41.5% of interviewed men who were never in a union. We include each union as a separate case and cluster standard errors by individual in our analysis. For around one-quarter of unions, the exact month of union formation or dissolution is not available. In such situations, we randomly assign a month to be the date of the event. 0.01% of unions are excluded due to a lack of information on the year of the event and 0.40% of cases are excluded because they have missing information on one or more of the other variables used in the analysis, resulting in a final sample of 63,462 unions for 46,192 individuals. Sample weights are used in all analyses.

The key variable of our analysis is the sex-composition of the union. Respondents were asked “Are you a man or a woman? Or a transgender woman or a transgender man?” For each union, respondents were asked “What is (was) the sex of this partner?” with the same four response options. Transgender individuals might experience particular pressures on their relationships that merit a specific analysis, but their small number did not allow producing robust results. Therefore, we excluded the 28 individuals identifying as transgender from the analysis. If respondent and partner sex correspond, we mark that particular union as a same-sex union. 1,051 unions are of the same sex (1.7% of all unions). As explained above, the identification of same-sex couples in this manner is prone to miscoding if not combined, for example, with an explicit same-sex couple option in relationship status questions (Cortina and Festy 2014). Colombia’s DHS has the advantage of including a question on sexual behavior: “Have you ever had sexual approaches or intercourse with another man/woman?” (Depending on the answer to the question on sex discussed above, men were presented with the wording “another man”, whether woman were presented with the wording “another woman”). If we assume that most individuals in a union have sex at some point, we would expect the great majority of individuals who reported a union with a man or a woman to also report ever having had sex with a man or a woman, respectively.

Even though few same-sex couples appear to be hesitant to report their union type to surveys (Festy 2007), questions about sexual behavior might be sensitive, especially in contexts with more traditional values (Berg and Lien 2006; Caltabiano and Dalla-Zuanna 2013). The data we used is collected through Computer Assisted Personal

Interviews (CAPI), which reduces the prevalence of miscoding (Lau 2012; Manning, Brown, and Stykes 2016) but can increase the chance that individuals give socially desirable answers and can underestimate the prevalence of same-sex behavior (Caltabiano and Dalla-Zuanna 2013). Therefore, we also follow previous research (Régnier-Loilier 2018) by documenting differences in marriage, and the total number of children respondents ever had, in order to get further insight into the characteristics of same-sex unions reported by individuals who do not report having had sex with someone of the same sex. Marriage was not a legal option for same-sex couples in Colombia during the observation period. Even though some same-sex couples might be married (e.g., through marriage abroad), marriage should be less prevalent among same-sex unions as compared to different-sex unions. Similarly, many individuals have children within different-sex unions before forming a same-sex union (Moore and Stambolis-Ruhstorfer 2013). Nonetheless, the total number of children should in principle be lower for individuals who had a same-sex union, due to the obstacles to parenthood experienced by same-sex couples.

The DHS also contains information on sexual identity, measured by the question “Are you heterosexual, homosexual or bisexual?”, but, as discussed later, many individuals identifying as a sexual minority do not identify with these labels (Salomaa and Matsick 2019; Viteri, Serrando, and Vidal-Ortíz 2011). Therefore, this measure of sexual identity is likely to exclude an important share of individuals who had a same-sex union.

Another possible way in which information is normally cross-verified is by using information provided by the partner of the respondent, but information from partners is not available in the DHS. Similarly, information on previous unions could be used. Among all respondents who ever reported a same-sex union, 30% of them also reported a different-sex union. However, given that previous or later different-sex unions are common among individuals who have been in a same-sex union (Moore and Stambolis-Ruhstorfer 2013), using this information for cross-verification is not straightforward.

The dependent variable of the analysis is ‘union dissolution’. Out of all unions, 23,329 ended in dissolution. Unions were right-censored if the union was still intact at the time of the interview or the partner had passed away. Covariates included are ‘Duration of the union’ in months; ‘Union order’; ‘Union formation cohort’, a dummy variable distinguishing between unions formed before and after 2007 (when civil partnerships became available as a legal relationship form to same-sex couples); partners’ ‘Age difference’ (<4 years; 4–10 years; 11+ years); respondents’ ‘Education’ (less than primary; primary; secondary; tertiary); ‘Sex’; ‘Age at union formation’; ‘Region of residence’, and ‘Urban/rural status’ (dummy). Table 1 displays descriptive statistics of the sample overall, for same-sex unions, and for same-sex unions of individuals who reported they ever had sex with someone of the same sex.

We estimate Kaplan–Meier survival models to describe differences in union stability and piecewise constant exponential survival models to estimate the risk of union dissolution conditional on covariates (using four splines: 0–3 years; 4–6 years, 7–12 years, and 13+years). The survival models are clustered by individual.

**Table 1: Descriptive statistics of all unions and same-sex unions**

Variable	All unions (n = 63,462)	Same-sex unions (n = 1,051)	Same-sex union & sexual practice (n = 202)
<b>Gender/Sex of respondent</b>			
Man	48.0(47.4–48.5)	41.6(36.9–46.4)	51.7(40.4–62.9)
Woman	52.0(51.5–52.6)	58.4(53.6–63.1)	48.3(39.1–59.7)
<b>Educational attainment</b>			
Primary or less	27.7(26.5–28.8)	28.0(24.1–32.4)	7.6(3.9–14.2)
Secondary	45.3(44.0–46.7)	46.5(41.7–51.4)	46.7(35.7–58.1)
Higher	27.1(25.7–28.5)	25.4(20.8–30.7)	45.7(34.8–57.0)
<b>Type of unión</b>			
Marriage	35.6(34.2–37.0)	32.3(27.4–37.6)	7.3(2.4–19.8)
Cohabitation	64.4(63.0–65.8)	67.7(62.4–72.7)	92.7(80.2–97.6)
<b>Union Order</b>			
One	57.3(56.2–58.5)	64.1(59.1–68.7)	46.2(35.0–57.9)
Two	28.9(28.0–29.7)	25.1(20.9–29.8)	37.2(26.8–48.9)
Three+	13.8(13.0–14.6)	10.9(8.2–14.2)	16.6(9.2–28.2)
<b>Children at time of interview</b>			
None	9.9(9.3–10.5)	20.2(16.4–24.6)	82.3(74.4–88.2)
One	22.9(22.9–23.9)	18.5(15.1–22.5)	8.9(5.0–15.2)
Two	28.8(27.9–29.7)	27.5(23.1–32.4)	6.5(3.5–11.7)
Three	19.4(18.6–20.1)	16.9(13.1–21.6)	1.4(0.4–5.0)
Four+	19.1(18.4–19.9)	16.8(13.8–20.2)	0.9(0.2–3.7)
<b>Zone of current residence</b>			
Rural	22.3(21.1–22.5)	23.4(19.2–28.0)	3.8(1.6–8.4)
Urban	77.7(76.5–78.9)	76.6(72.0–80.7)	96.2(91.6–98.4)
<b>Cohort</b>			
Formed before 2007	65.0(64.0–65.9)	58.9(54.1–63.6)	32.6(24.1–42.1)
Number of individuals	46,192	960	140

Note: Sample weights included. \* 95% Confidence intervals between brackets where applicable. Percentages calculated as characteristics of unions, not individuals. Source: Colombia 2015 DHS.



### 3. Results

Table 2 shows survival rates of same-sex unions and different-sex unions. After ten years, slightly more than one-third of both same-sex and different-sex unions had dissolved. Table 3 shows that these results are robust to including control variables. In additional analysis we interacted union type with age at union formation, but we found no significant or substantial differences by age at union formation (available upon request).

Table 3 also breaks different-sex unions down by marital status and splits same-sex unions by gender. The hazard of dissolution for different-sex cohabiting unions is 27% higher than for women's same-sex unions, but the precision of estimates is low (see Table 3). There are practically no differences between men and women in same-sex unions (Hazard ratio 1.02). The hazard of dissolution is half as high for different-sex marriages as compared to women's same-sex unions, but marriage was not available to same-sex couples during the observation period.

The last sets of results in Tables 2 and 3 show how results look surprisingly different once combining information on the sex of partners with information on the sexual behavior of the respondent. After 10 years 80% of same-sex unions reported by individuals who ever had sex with someone of the same sex had dissolved. By contrast, the dissolution rate of same-sex unions reported by individuals who did not report same-sex sexual behavior is slightly lower than the dissolution rate of different-sex unions of individuals not reporting same-sex behavior. The different-sex unions of individuals who reported same-sex behavior fall in between both groups. These dramatic differences can arise because 82% of same-sex unions come from individuals who reported never having had sex with someone of the same sex. This result would suggest that same-sex unions are considerably more likely to end in separation than different-sex unions.

**Table 2: Kaplan–Meier survival rates of same-sex unions and different-sex unions**

Type of union	Duration (months)			
	12	60	120	180
All unions (n = 63,462)	0,93	0,76	0,64	0,56
Different-sex union (n = 62,411)	0,93	0,76	0,64	0,56
Same-sex unions (n = 1,051)	0,90	0,73	0,64	0,60
Different-sex union & behavior (n = 61,574)	0,94	0,76	0,64	0,56
Different-sex union & same-sex behavior (n = 837)	0,87	0,61	0,46	0,41
Same-sex union & different-sex behavior (n = 849)	0,93	0,80	0,73	0,69
Same-sex union & behaviour (n = 202)	0,79	0,39	0,20	0,18

Source: Colombia 2015 DHS.

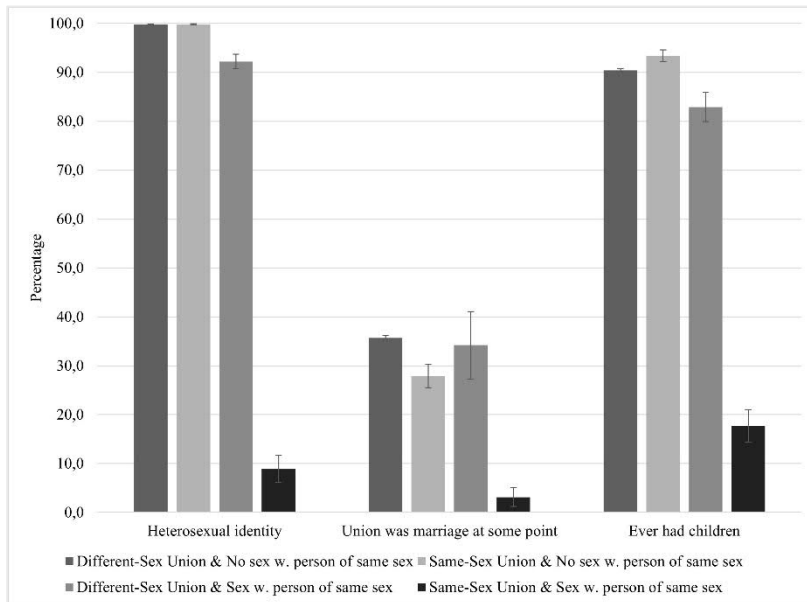
**Table 3: Piecewise constant exponential survival models explaining union dissolution (hazard ratios)**

	Model 1		Model 2		Model 3	
	Haz.Ratio	Lower CI 95%	Haz.Ratio	Lower CI 95%	Haz.Ratio	Upper CI 95%
Same-sex union	0,96	0,83				
Ref. Different-sex union		1,12				
Different-sex marriage			0,51	0,41		
Different-sex cohabiting union			1,27	1,04	0,63	
Male same-sex union					1,56	
Ref. Female same-sex union			1,02	0,75	1,40	
Same-sex union, same-sex practice						
Same-sex union, no same-sex practice					2,68	3,45
Dif.-sex union, same-sex practice					0,72	0,86
Ref. Dif.-sex union, no same-sex practice					1,54	2,11
N unions (individuals)	61,316 (46,188)					

Note: Dif Sex = Different sex. Controls included but not shown: Union order, cohort, and age difference; Respondents' education, sex, age at union formation (and age at union formation squared), region of residence, and urban/rural status. Robust Standard Errors clustered by individual; stratified by union order. Sample weights included.  
Source: Colombia 2015 DHS.

It is possible that individuals who reported having had a same-sex union were hesitant to report having had sex with someone of the same sex. In other words, it is possible that the sexual behavior variable was misreported or miscoded, rather than the sex of one of the partners. We therefore compare the different types of same-sex union (i.e., divided by sexual practice) to different-sex unions in Figure 1. If persons who were in same-sex unions were hesitant to report same-sex behavior, we would expect them to have characteristics that are similar to other persons reporting same-sex unions. More specifically, we would expect a low prevalence of heterosexual identities, few of their unions to have been marriages, and relatively few children present. The first column displays to what extent reports on union sex-composition, sexual identity, and sexual practice overlap. 99.8% of persons who reported a same-sex union but reported never having had sex with someone of the same sex identified as heterosexual, the same percentage as observed for different-sex unions reported by individuals who reported never having had sex with someone of the same sex. By contrast, 91% of persons who had a same-sex union and sex with someone of the same sex answered bisexual or homosexual to the sexual identity question.

**Figure 1: Descriptive statistics of sexual orientation, unions that were marriage at some point, and children ever born, by type of union**



Note: Sample weights included. Source: own elaboration based on Colombia 2015 DHS.

Similarly, we observe that practically no same-sex unions reported by persons who ever had sex with someone of the same sex were marriages, and the share with at least one child is very low (Figure 1). In comparison, one-fifth of same-sex unions of individuals who never had sex with someone of the same sex were reported to be marriages, a percentage not much lower than observed for all unions in Colombia (28%). Similarly, individuals reporting never having had sex with someone of the same sex have as many children as individuals reporting different-sex unions. Individuals who ever had sex with someone of the same sex and reported different-sex unions are similar to other persons in different-sex unions, but less often identify as heterosexual.

In short, same-sex unions reported by individuals who indicated never having had sex with someone of the same sex are similar to different-sex unions reported by persons who indicated never having had sex with someone of the same sex. In addition, many of these same-sex unions were reported to have been marriages, a legal option not available to same-sex couples at the time. Even though it is possible that misreporting on sexual behavior took place, it is plausible that for an important share of these unions the information on sex-composition of the union was miscoded, rather than information on sexual behavior.

#### **4. Discussion**

In this article we documented differences in union dissolution rates between same-sex unions and different-sex unions in Colombia, a context with high social stigma towards sexual minorities. We innovated by using measures of sexual practice from the DHS 2015 to show how conclusions differ depending on how same-sex unions are identified. When solely using information on the sex of partners, the stability of same-sex unions appeared very similar to that of different-sex cohabiting unions; a result also observed for the United States and Taiwan (Ketcham and Bennett 2019; Lin, Yu, and Su 2019; Manning, Brown, and Stykes 2016; Rosenfeld 2014). However, same-sex unions of individuals who ever had sex with someone of the same sex were much less stable than different-sex unions. The relative absence of differences in stability between same-sex unions and different-sex unions overall was driven by a large sub-group of same-sex unions reported by individuals who reported never having had sex with someone of the same sex. Additional analysis showed that many of these unions were possibly different-sex unions because of the high prevalence of marriage, children, and heterosexual identities among the persons who reported these unions.

Can we have more confidence in our results based on measures of sexual practice? If there is miscoding on sex variables, there could very well be miscoding on sexual practice variables too. This would make a case for combining information from two or

more indicators to reduce the influence of accidental miscoding. We therefore echo the recommendation of previous research that has recommended the combined use of questions on the sex of partners and answer options to relationship questions that explicitly include same-sex partners (Cortina and Festy 2014). Questions on sexual behavior can be an additional way to cross-verify information. It has to be noted that sexual behavior measures might have other issues related to non-response or social desirability, and this might therefore be a more restrictive way of identifying same-sex couples. This is an issue future research can explore further.

The DHS data also included questions about sexual identity that could possibly be considered to cross-verify information. However, 9% of persons who reported both a same-sex union and having had sex with someone of the same sex did not report identifying as homosexual or bisexual. This is congruent with previous research that has shown that sexual identities go beyond the options offered in most surveys, including identities that acknowledge gender as a non-binary characteristic, and that the meanings of specific labels vary across socioeconomic status and ethnicity (Goldberg et al. 2020; Kim and Fredriksen-Goldsen 2013; Ridolfo, Miller, and Maitland 2012; Viteri, Serrando, and Vidal-Ortíz 2011). In addition, sexual identity changes over time (Katz-Wise et al. 2016; Salomaa and Matsick 2019), which complicates combining cross-sectional sexual identity measures with retrospective information on relationships.

Based on our estimates combining information on the sexual practice and sex-composition of couples, we find that same-sex unions are considerably more likely to dissolve than different-sex unions in Colombia. What does this result say about how differences in dissolution risk between same-sex and different-sex unions vary across contexts? Our results contrast with studies in contexts with less stigma than Colombia, such as the United States, where the stability of same-sex unions is similar to the stability of different-sex cohabiting unions (Ketcham and Bennett 2019; Manning, Brown, and Stykes 2016). This would suggest that the relative stability of same-sex unions is indeed lower in countries with high social stigma towards sexual minorities. However, it is not clear whether results are comparable across studies, as previous research has only used information on unions' sex-composition. It is hard to tell whether the issue of miscoding has masked differences in union stability in these previous studies. Because of the high level of stigma in Colombia, the influence of miscoding on substantive conclusions might be more dramatic (because the weight of miscoded unions is relatively higher when same-sex unions are less common). At the same time, previous studies on the United Kingdom and the United States have also found large shares of miscoded same-sex unions (Cheng and Powell 2015; Gates and Brown 2015; Lau 2012; Watkins 2018). Therefore, our findings raise the question of to what extent the lack of convergence in union stability over time observed in some contexts (Lau 2012) can be explained by measurement issues. At the least, the results of this paper have shown that more attention is needed regarding

the way same-sex couples are identified in data, and that a careful combination of measures might be an effective way to reduce the influence of possible errors. Finally, the results provide some first evidence that differences in union stability between different-sex and same-sex unions are pronounced in highly stigmatized contexts. Future research could investigate whether improvements in attitudes and laws lead to a convergence in union stability over time.

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