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Abstract

Same-sex couples increasingly often live in legally recognized unions and have children as a couple. The accessibility of parenthood, however, depends on intersecting contextual and couple-level characteristics. Using Finnish register data on female same-sex couples who registered their partnership in 2006–2015, during which important legal reforms regarding same-sex parenthood took place, we explore how education and the existence of prior children predict childbearing within the same-sex partnership. Female same-sex couples' likelihood of having a child within five years of registering a partnership increased from 34% to 43% over the observation window. This increase was not universal. For couples educated to tertiary level, the increase was from 39% to 52%. For primary and lower-secondary levels, the likelihood decreased from 26% to 8%. Couples with the highest level of education and no prior children were most likely to have a child, and couples with low education and a prior child born before the partnership were least likely to do so. These results highlight how intersectional factors shape female same-sex couples' fertility behavior. Intensifying educational differences in couples' fertility may reflect changes in couple-level characteristics as well as institutional barriers to childbearing that need more attention.

Keywords Same-sex couple, Registered partnership, Family formation, Childbearing, Educational level

Introduction

In recent decades, an increasing number of countries have recognized same-sex couples' unions and parenthood in their legislation (Waalwijk 2020). A same-sex couple with children is not a new family form per se, but growing legal and social recognition has intensified the need to understand prevailing inequalities in couples' chances of fulfilling their desires for parenthood (Rault 2020). Same-sex couples must navigate complex institutional regimes to have children, and may face discriminative structures (Gates 2015). Socioeconomic resources, such as education or income, may help couples overcome these barriers (Moore & Stambolis-Ruhstorfer 2013). Even though institutional constraints and a lack of sufficient resources have been found to interfere with same-sex couples' parental intentions (Baiocco & Laghi 2013; Riskind & Tornello 2017), the existing literature lacks proper insights into how socioeconomic resources are associated with their likelihood to have children (Biblarz & Savci 2010; Rault 2020).

This study provides insights into female same-sex couples' childbearing patterns over time, with a focus on how such couples' level of education shapes the likelihood of them having children. Lesbians have often been observed to be socioeconomically advantaged (Aldén et al. 2015; Andersson et al. 2006; Black et al. 2007); however, this advantage may be partially explained by positively biased samples of lesbian women and couples in studies (Biblarz & Savci 2010; Goldberg 2009; Reczek 2020). Indeed, recent studies have challenged this view by providing evidence that the educational level of lesbians is similar to or lower than the educational level of heterosexual women (Mittleman 2022; Tate et al. 2019). Given the complex procedures of childbearing in same-sex couples, an overestimation of their educational level may lead to an underestimation of the barriers such couples encounter in accessing parenthood at the population level.

Our primary research aim is to assess how educational level is associated with female same-sex couples' likelihood of becoming parents and how this association has evolved in a changing legal environment. As far as we know, this is the first time that the magnitude and changes in educational differences related to childbearing have been assessed using large-scale population data of female same-sex couples. In addition, to understand how the fertility histories of women in same-sex couples are associated with their childbearing in registered partnerships, we look at whether the likelihood of childbearing is affected by the existence of previous children of either woman. We use high-quality population register data and give an overview of the recent demographic trends in the childbearing patterns of female same-sex couples by exploring their fertility up until the end of 2020.

We explore these aspects of female same-sex couples' fertility behavior in the interesting context of Finland. Finland is one of the Nordic countries, and, as such, it is regarded as being among the pioneers in granting legal recognition of same-sex couples' family rights, and is considered to be among the most family-friendly countries in the world (Evertsson et al. 2020). While Finland is part of this type of welfare regime, its legal recognition of same-sex unions and parenthood has lagged behind Denmark, Sweden, and Norway (Evertsson et al. 2020; Rydström 2011). Furthermore, assisted reproductive technology in Finland's otherwise generous public health care sector was not accessible to female same-sex couples until the end of 2019 (Evertsson et al. 2020). This study presents new findings regarding female same-sex couples' childbearing in a period when same-sex parenthood became legally recognized, but in which same-sex couples had to cover all the costs of medically assisted reproduction themselves.

Intersectionality and Reproduction

We explore differences in female same-sex couples' fertility behavior by applying an intersectional framework. Intersectionality refers to the interconnection of multiple social categories that simultaneously shape social realities and expose individuals to different privileges and disadvantages that structure life experiences in different contexts over time (Collins 2015; Crenshaw 1991). The interconnections of social categories, understood as changing identity statuses and structural positions (Cho et al. 2013), result in distinct outcomes that are not fully uncovered by focusing on a single axis of difference; rather, the connections depend on positionality on another axis of difference (Crenshaw 1991).

As an analytical framework, intersectionality provides insights into social institutions, practices, and other phenomena associated with social inequalities (Collins 2015).

Intersectionality has previously been applied to a wide range of sociological topics, one being the ways in which countries constitute regulatory regimes of reproduction and family formation (Cho et al. 2013). The transition to parenthood is known to be shaped by identities and social categories (Evertsson et al. 2020; Moore 2011). Intersectionality, therefore, provides a useful approach to the study of the family formation of female same-sex couples who need to navigate broader social structures, such as legislation and cultural ideas of motherhood and family (Goldberg 2009), to do so.

We examine how the intersections of same-sex partnership, educational level, and fertility history shape the fertility outcomes of female same-sex couples over time. Education is a major factor affecting individuals' social status (Kravdal & Rindfuss 2008), and it is known to have a fundamental role in women's fertility behavior (Rindfuss et al. 1980, 1996). In addition, the existence of prior children shapes the parental identities and the circumstances in which decisions on subsequent childbearing are made (Stewart 2002). We are interested in

how these intersections have changed over time, given that same-sex couples' possibilities for entering parenthood have partly depended on how their parental intentions have coincided with the timing of legal recognition of same-sex parenthood (Costa & Bidell 2017; Moore 2011). We discuss the findings on female same-sex couples alongside corresponding data on different-sex couples who are married to enhance our understanding of childbearing patterns in the intersectional framework.

Childbearing Intentions

Female same-sex couples are known to be less likely to become parents than different-sex couples (e.g. Black et al. 2007; Wiik et al. 2014), but the extent to which this reflects different preferences and life goals, or unequal opportunities in childbearing, is not known. According to a theory of planned behavior, childbearing intentions are formed based on behavioral, normative, and control beliefs about having a child (Aizen & Klobas 2013). Even though the theory has many elements that can be used to describe and theoretically label contextual factors in childbearing by female same-sex couples, only one previous study using the theory has included female same-sex couples (van Houten et al. 2020). Van Houten et al. (2020) suggested that perceived positive life chances and self-efficacy related to parenthood predicted the strength of parental intentions similarly across sexual orientations among those who wanted children. For gay and lesbian individuals, their perception of their own parents' acceptance of their future parenthood was a weaker predictor of the strength of parental intentions than it was for heterosexuals (van Houten et al. 2020).

According to the theory of planned behavior, behavioral beliefs consist of attitudes towards doing something, in this case, having a child (Aizen & Klobas 2013). Previous studies have shown that lesbian and heterosexual women value parenthood equally highly (Riskind & Patterson 2010) and have similar expectations regarding the personal rewards and burdens of

being a parent (Hank & Wetzel 2018; Kleinert et al. 2015). In addition, those who want a child express equally strong intentions (van Houten et al. 2020). Nevertheless, lesbian individuals are less likely to report desire for parenthood (Baiocco & Laghi 2013; Riskind & Patterson 2010; Riskind & Tornello 2017) or actual intentions to have children (Baiocco & Laghi 2013; Costa & Bidell 2017; Tate et al. 2019). This may be at least partly explained by their different experiences of social norms regarding having a child, as well as their awareness of institutional obstacles related to childbearing.

Normative beliefs concerning childbearing refer to perceived social pressure and norms (Aizen & Klobas 2013). While women in different-sex couples can usually expect only their close family and friends to have an opinion about their decision to have children, wider heteronormative cultural perceptions of parenthood expose same-sex couples to the opinions of strangers to a greater degree. Thus, the fear of negative attention may interfere with their parental intentions (Anttila et al. 2021; Baiocco & Laghi 2013; Mezey 2008, 2013). Control beliefs in this context refer to a woman's perception of her self-efficacy relative to the resources and obstacles that influence her ability to have a child (Aizen & Klobas 2013). Institutional constraints and a lack of financial resources have been shown to have a negative influence on same-sex couples' parental intentions (Baiocco & Laghi 2013; Riskind & Tornello 2017), potentially decreasing couples' sense of control over the process. Whether intentions result in childbearing depends on the degree of couples' actual control over having a child (Aizen & Klobas 2013). The possibilities provided for conceiving a child frame the choices that same-sex couples can eventually make (Rault 2020), and dependency on outside help decreases their actual control over childbearing.

Individual background factors and demographic characteristics influence beliefs regarding childbearing and parental intentions (Aizen & Klobas 2013). For example, children from

previous relationships are important predictors of fertility intentions and behavior (Stewart 2002; Vikat et al. 2004). People's experiences of raising a child may shape attitudes toward having an additional child (Aizen & Klobas 2013). Among couples with prior children by either partner, a desire to have an additional child together as a couple can be seen as an expression of commitment to each other within a new partnership (Griffith et al. 1985). The negative effect of previous children on couples' attitudes toward having another child are typically explained in terms of costs associated with bigger family sizes (Stewart 2002; Vikat et al. 2004), which may be especially pronounced for female same-sex couples (Boye & Evertsson 2021).

Except for the study by Boye and Evertsson (2021), which indicated that childbearing was more common among female same-sex couples in which neither spouse had previously had a child, the existing literature lacks further insight into the relationship between the likelihood of having children and the existence of previous children. Furthermore, to our knowledge, the present study is the first to assess how the intersections of educational level and having previous children are associated with childbearing in female same-sex couples.

Same-sex Couples and Fertility

The literature on same-sex couples' childbearing and parenthood has grown in the twenty-first century (Moore & Stambolis-Ruhstorfer 2013; Rault 2020). The field of study has been dominated by research on lesbian motherhood and female same-sex couples. Fewer studies have focused on gay fathers and male same-sex couples or the family relationships of bisexual people (Biblarz & Savci 2010). Similarly, our study only includes female same-sex couples. This is because the number of male same-sex couples having children is too low in the Finnish statistics to be included in a register-based study. Female same-sex couples are known to have a higher likelihood of having children than male same-sex couples, a finding that has

been explained by their better opportunities to benefit from available methods of childbearing (Evertsson et al. 2020; Kolk & Andersson 2020; Waaldijk 2020).

Studies have shown that a large share of the children raised by female same-sex couples were born during the women's previous different-sex relationships (Andersson et al. 2006; Gates 2015; Kolk & Andersson 2020). With increasing access to medically assisted reproduction, more children of female same-sex couples are born in the same-sex relationships (Gates 2015; Reczek 2020). However, due to the scarcity of reliable register data, few studies have assessed the likelihood of childbearing from the start of a legal union for female same-sex couples. Previous studies are mainly from the Nordic countries which have internationally unique population registers of high-quality (Kolk & Andersson 2020).

For female same-sex couples in the Nordic countries, a legal union has long been a prerequisite for having children and sharing legal parenthood. As a result, there is a strong relationship between the formalization of a same-sex union and childbearing (Aldén et al. 2015; Kolk & Andersson 2020). The number of female same-sex couples entering a legal union and having children has steadily increased, with legal reforms creating new possibilities for childbearing (Andersson & Noack 2010; Evertsson et al. 2020; Kolk & Andersson 2020). Even though the Nordic countries share some common patterns regarding female same-sex couples' fertility behavior, the likelihood of having children varies by country and time period. In Norway, for example, 24% of female same-sex couples who registered their partnership between 1993 and 2010 subsequently had at least one child together (Wiik et al. 2014). In Sweden, almost half of the female same-sex couples who got married in 2008 became parents within the first five years of marriage (Kolk & Andersson 2020). Previous studies are difficult to compare because of the varying lengths of the follow-up times and the different years covered in the analyses.

In Finland, the increase in the number of female same-sex couples becoming parents started later and has been more modest compared with other Nordic countries. This is likely due to later legislative changes and the public health sector's refusal to offer fertility treatments to female same-sex couples until the end of 2019 (Evertsson et al. 2020). Even though medically assisted reproduction was made legal in 2007 for all women of reproductive age, in practice, only private clinics offered fertility treatments for female same-sex couples. This is important in the context of Finland because the country's public health sector is the preferred option for health care for most people due to its lower cost and high quality. The public health sector has been offering fertility treatments to women in female same-sex couples since 2019 after the administrative court deemed the denial of services to be discriminatory (Evertsson et al. 2020; Rainbow Families Finland 2019).

Alongside legal access to fertility treatments, the enforcement of the law enabling second-parent adoption in 2009 improved the institutional environment regulating childbearing for same-sex couples in Finland. The recognition of the legal parental rights of two persons of the same sex, securing a child's legal relationship with a non-birth mother, has been found to be a significant factor in female same-sex couples' childbearing decisions (Kolk & Andersson 2020; Malmquist 2015).

Educational Level and Fertility

Education has a strong influence on women's fertility behavior (Rindfuss et al. 1980, 1996), and its effect can operate through several mechanisms (Kravdal & Rindfuss 2008). Both education and parenthood impact individuals' roles, which are often at least temporarily conflicting (Rindfuss et al. 1980, 1996). Women engaged in higher education tend to postpone childbearing (Blossfeld & Huinink 1991). A higher level of education can lead to a better labor-market position and income, and, in turn, to a greater opportunity cost of

childbearing (Becker 1991). On the other hand, couples with a higher level of education may better afford children, whereas couples with a lower level of education may delay childbearing if they expect their financial situation to improve (Happel et al. 1984). A higher level of education is also associated with the stability of partnerships, and that, in turn, increases the likelihood of having children (Jalovaara & Fasang 2017).

Some of the mechanisms of the association between education and fertility behavior may be more pronounced among female same-sex couples than among different-sex couples due to their different routes to parenthood. Financial resources gained through a higher level of education can be more decisive for female same-sex couples, as their methods of conceiving increase the expenditures of having children (Boye & Evertsson 2021; Mamo 2007). Previous studies have shown that assisted fertility treatments are the preferred option for achieving pregnancy among most female same-sex couples (Mamo 2007; Moring 2013). At private clinics in Finland, the prices of insemination start from approximately 400 euros, and the price of one cycle of IVF starts at approximately 3,000 euros. With appointment fees, medical examinations and drugs, the total cost can rise to several thousand or tens of thousands of euros. Since many female same-sex couples also need legal services to become parents, access to sufficient information on different procedures is crucial (Mezey 2013). Even if the information on different procedures is equally accessible to all, the ability to gain a broader understanding of the consequences of the different options and to use that information in dealing with medical and legal institutions may differ between educational groups in favor of the more highly educated (Bell 2016; Mamo 2007; Moore 2011). Among different-sex couples, a higher socioeconomic status is associated with a greater likelihood of having children via fertility treatments (Goisis et al. 2020; Klemetti et al. 2007; Smith et al. 2011). Corresponding information on same-sex couples is currently not available.

Education shapes attitudes and values and promotes the ability to critically examine and challenge social norms (Kravdal & Rindfuss 2008; Martin 1995; Rindfuss et al. 1980).

Women in same-sex partnerships must negotiate being in a sexual minority and being a parent in a heteronormative society, and highly educated couples may be in a better position to deal with these roles and with the internalized or externalized stigma regarding their parenthood (Goldberg 2009; Mezey 2008).

An extensive number of studies have found that highly educated women have typically had a higher age at first birth, higher levels of childlessness, and lower completed fertility compared with women with lower levels of education (Berrington et al. 2015; Ní Bhrolcháin & Beaujouan 2012; Rindfuss et al. 1996), although the details of the relationship between education and fertility behavior vary across cultural, sociopolitical, and economic contexts (Andersson et al. 2009; Martin 1995; Sobotka et al. 2017; Wood et al. 2014, 2020). In more recent cohorts, the negative association between educational level and fertility seems to have weakened since the likelihood of childlessness and the gap in the number of total children between women with high and low levels of education have converged in the U.S. and some European countries (Adserà 2017; Bailey et al. 2014; Kravdal & Rindfuss 2008; Zang 2019). In some Nordic countries, the patterns of lifetime childlessness have even reversed, leading to higher levels of childlessness among women with lower levels of education (Andersson et al. 2009; Jalovaara et al. 2019, 2021).

The literature on the association between educational level and women's fertility has not usually looked at women's sexual orientation, and therefore it is not known what share of women in these studies identify as lesbian or bisexual or live in same-sex partnerships. Barely any studies have focused specifically on the association between educational level and fertility behavior among women in same-sex partnerships (Biblarz & Savci 2010; Rault

2020). Boye and Evertsson (2021) provided the first, and thus far the only, statistical evidence of the association between socioeconomic status and childbearing in their study of female same-sex couples who formalized their unions in Sweden between 1995 and 2016. During the follow-up period until the end of 2016, the female same-sex couples with at least one highly educated partner were more likely to have had a child than the couples with a lower level of education, and childlessness was most common among couples with the lowest level of education (Boye & Evertsson 2021). Given the more costly assisted fertility treatments in Finland, where such treatments are not subsidized for female same-sex couples as they are in Sweden, we expect to find a similar or even stronger association between educational level and childbearing, with highly educated women more likely to have children. As far as we know, changes in educational differences in childbearing over time have not yet been assessed for female same-sex couples.

Based on what is known in other Nordic countries, we hypothesize that female same-sex couples' likelihood of having children has increased over time. Even though we expect highly educated couples to be the most likely to have had a child in the follow-up period, we do not expect to see a change in educational differences in childbearing over time. We also hypothesize that same-sex couples with no prior children would be more likely to have a child together, compared with couples with at least one prior biological child by either partner.

Data and Methods

Data

We used individual-level data drawn from the Finnish population registers and the register of completed education and degrees provided by Statistics Finland. Using anonymized personal

identification numbers, individuals' civil status records were linked with information on their biological children, emigration, education, and death.

Our dataset is based on all female same-sex couples who registered their same-sex partnerships in 2006–2010 and 2011–2015. Only officially registered partnerships are included in our study because information on sexual orientation is not collected, and same-sex cohabitating couples are not identified in the Finnish administrative registers. A total of 1,639 couples, of which 670 registered their partnership between 2006 and 2010, and 969 between 2011 and 2015, were identified in the data. The dataset does not contain married couples because gender-neutral marriage legislation was not introduced in Finland until 2017.

We excluded a couple if either woman resided abroad at the time of registering the partnership (111 women). We did this to focus on women who had a same-sex partnership within the Finnish institutional context. To explore childbearing patterns among women in their first formalized same-sex partnership, our analysis excluded women who had previously been in a same-sex registered partnership. However, we included women who had been in a different-sex marriage previously. With these terms, we excluded 31 couples (2.3%) from the first union cohort and 48 couples (2.5%) from the second union cohort. We also limited the sample according to the age of the younger woman, who had to be aged under 45 years at the time of registering the partnership (i.e., less than 50 years old at the end of the five-year follow-up period). The reason for this is that most private clinics have set an upper age limit of 40–46 years for women to access fertility treatments in Finland (Finnish Institute for Health and Welfare 2021). Our analytical dataset thus consists of 577 female couples who registered their first same-sex partnership between 2006 and 2010, and 841 couples who registered their same-sex partnership between 2011 and 2015.

To put female same-sex couples' fertility behavior in a broader context of childbearing in legal unions, we discuss their fertility in relation to different-sex couples who got married in the same periods. However, it is noteworthy that the childbearing patterns of female same-sex couples and different-sex couples who entered legal unions are not directly comparable. Among different-sex couples, it is increasingly common to have a first child outside of marriage, for example within cohabitation (Schnor & Jalovaara 2020; Sobotka & Toulemon 2008). We have data on 257,943 different-sex couples, of whom 140,727 got married in 2006–2010 and 117,216 in 2011–2015. We applied the same logic in the inclusion criteria for different-sex couples as for female same-sex couples, with the difference that the woman needed to be under 45 years old. Our dataset of different-sex couples comprises 93,138 couples who got married between 2006 and 2010 and 79,355 couples who got married between 2011 and 2015.

Methods

We assess female same-sex couples' probability of having a child within the first five years of their registered partnership. We use the Kaplan-Meier estimator to assess the cumulative probability of not having a child. Couples are at risk of having a child from the date of registering a partnership until the event of childbirth or the time of divorce, emigration or death of either partner or until the end of the five-year follow-up time, whichever comes first. If, following changes in legislation, a couple convert their registered partnership into a marriage during the follow-up time, this is ignored in the analysis. In the text, we present the cumulative probability of having a child at the end of the five-year follow-up time, based on the Kaplan-Meier (KM) estimate ($1-KM$).

All analyses are performed separately for the two union cohorts. The first cohort consists of individuals whose unions were registered between 1 January 2006 and 31 December 2010.

The five-year follow-up period ends on 31 December 2015 at the latest. The second cohort covers individuals whose unions were registered between 1 January 2011 and 31 December 2015. The five-year follow-up period of the last-registered unions ends on 31 December 2020.

First, we look at the risk of childbirth within the first five years of the registered partnership according to whether the partnership was formed in the first period (2006–2010) or in the second period (2011–2015). Childbirth is defined as the birth of a biological child mothered by either woman. If both women gave birth to a child within the follow-up period, we consider only the birth of the first child.

Second, we investigate the risk of childbearing by educational level. The educational level of a couple is defined as the highest level of education obtained by either spouse by the end of the year of entering into the union. The couples were split into three educational groups according to the International Standard Classification of Education 2011 (ISCED). Low education includes primary and lower-secondary education or less (ISCED 0–2), medium education refers to upper-secondary education (ISCED 3–4), and high education consists of tertiary levels (ISCED 5–6). Low education also includes unknown education levels, which refers to education completed abroad and not registered in the Finnish register of completed education and degrees. We assess changes in the association between the couples' educational level and the probability of having a child between the two time periods by using the two-proportion z-test. In addition, we use the Cox proportional hazards model to take a closer look at female same-sex couples' educational differences and childbearing while considering the women's ages. The first Cox proportional hazards model is unadjusted, and the second model is adjusted for the age of the younger woman in the couple.

Third, we study differences in childbearing by both educational level and existence of previous children. A couple is categorized as a couple with previous children if one or both

partners have had at least one biological child before the date of forming the union. The couples in every educational group are divided into two groups based on the existence of prior children. We discuss the importance of a legally recognized union for childbearing in female same-sex couples and reflect on their childbearing patterns separately to married different-sex couples with and without prior children.

Results

Descriptive Results

Table 1 describes the data. Women who registered their first same-sex partnership in 2006–2010 were older than the women who registered their partnership in 2011–2015. In both cohorts, women who entered same-sex unions were on average older than women who entered different-sex unions. In about 60% of female same-sex couples, at least one woman had a high education. The share of highly educated couples was larger among female same-sex couples than among different-sex couples. However, female same-sex couples were also more likely to have only a low education. Fewer women had prior children among the couples who registered their first same-sex partnership in 2011–2015, compared to the 2006–2010 union cohort. In both cohorts, women entering same-sex unions were less likely than women entering different-sex unions to have prior children.

[Table 1]

The share of couples with prior children by education is shown in Table 2. Female same-sex couples with high education were least likely to have a child by either woman at the time of

registering the partnership, except for the low-educated couples in the latter union cohort.

Also, among different-sex couples, couples with a higher level of education were less likely to have children at the time of forming the marriage.

[Table 2]

Figure 1 shows the risk of childbearing over time for union cohorts. Female same-sex couples' probability of having had a child within the first five years of their registered partnerships was 33.9% (i.e. 100% – 66.1%) in the partnerships registered in 2006–2010, and 43.1% (i.e. 100% – 56.9%) in the partnerships registered in 2011–2015 (Figure 1 Panel a). The corresponding numbers for different-sex couples were 66.9% for the cohort 2006–2010 and 64.5% for the 2011–2015 cohort (Figure 1 Panel b). The probability of childbearing increased among female same-sex couples across cohorts and decreased among different-sex couples. Despite the increase among same-sex couples, they were still less likely than different-sex couples to have a child in both periods.

[Figure 1]

Childbearing by Educational Level

Figure 2 shows that high education was associated with a greater probability of having children among female same-sex couples. Among the couples who registered their partnership

in 2006–2010, the probability of having had a child within the first five years of their partnership was 38.7% among couples with high education, 26.6% among couples with medium education, and 25.7% among couples with low education (Figure 2 Panel a). Among the couples who registered their partnership in 2011–2015, the probabilities of bearing a child were more dispersed, being 52.2% among couples with high education, 32.0% among couples with medium education, and 7.5% among couples with low education (Figure 2 Panel b).

The proportion of highly educated couples who had a child increased by 13.5 percentage points, from 38.7% to 52.2% ($Z=3.84$, $p<0.01$) from the 2006–2010 cohort to the 2011–2015 cohort. The corresponding proportion of low-educated couples decreased from 25.7% to 7.5% across cohorts, but the decrease is not statistically significant ($Z=1.55$). The proportion of medium educated couples having a child seems to have increased, from 26.6% to 32.0%, but the increase is not statistically significant ($Z=1.19$). The association between the level of education and having a child looks different in the two union cohorts due to the changes in the probability of bearing a child among the high and low education groups (Figure 2), but the interaction between educational level and union cohort is not statistically significant ($p=0.094$).

[Figure 2]

Figure 3 shows the hazard ratios of having a child within the first five years of registered partnerships with and without adjustment for the age of the younger woman, with the medium education group as the reference group. In the unadjusted analyses (Figure 3 Panel a), the risk of bearing a child among couples with high education was 1.67 times ($p=0.003$, 95% CI:

1.19–2.34) as high as among those with medium education in the 2006–2010 cohort. The risk of bearing a child among couples with medium education was 1.30 times ($p=0.581$, 95% CI: 0.52–3.23) as high as among couples with low education. However, the difference is not statistically significant. In the 2011–2015 cohort, the risk of bearing a child among highly-educated couples was 2.01 times ($p<0.001$, 95% CI: 1.55–2.60) the risk among couples with medium education. The risk of bearing a child among couples with medium education was 4.55 times ($p<0.001$, 95% CI: 1.64–12.50) the risk compared with the low-educated couples.

In the analyses that adjust for the age of the younger woman, the educational differences are even larger (Figure 2 Panel b). For example, the risk of bearing a child among couples with medium education was 1.92 times ($p=0.166$, 95% CI: 0.76–5.00) as high as among the low-educated couples in the 2006–2010 cohort. In the 2011–2015 cohort, the risk of bearing a child among couples with medium education was 5.56 times ($p=0.001$, 95% CI: 2.00–14.29) the risk compared with the low-educated couples. These results reflect the changing age distribution that is documented in Figure A1 in the online appendix. In the age groups of the low-educated couples, the observed drop in the mean ages of the younger and older women may partially explain the decrease in childbearing, given that they are very young in the context of childbearing.

[Figure 3]

Figures 2 and 4 show that the probability of female same-sex couples with high education bearing children was lower than in any educational group among different-sex couples. The positive educational gradient observed in childbearing among female same-sex couples was

also recognizable among different-sex couples, but the group differences were smaller across educational groups and more stable between the two union cohorts (Figure 4).

[Figure 4]

Childbearing by Educational Level and Previous Children

Female same-sex couples' probability of having children within the first five years of a registered partnership was further differentiated by the existence of previous children.

Couples with no prior biological children by either woman were the most likely to have had at least one child during the follow-up period (Table 3). In partnerships registered in 2006–2010, the cumulative probability of childbearing was 36.2% among couples with no prior children, while it was 26.2% among couples with at least one prior child. In partnerships registered in 2011–2015, the corresponding probabilities were 47.1% and 28.8%.

Couples with no prior children had a higher probability of having children in every educational group in both union cohorts, except for the low-educated couples in the first union cohort. Among couples without children, there is a very strong educational gradient in childbearing in both union cohorts, while among couples with a prior child, there is no educational gradient in the first union cohort. The educational gradient in childbearing patterns was largely attributable to couples with no prior children for two reasons: first, the gradient was steeper in this group, and second, this group was larger than the group of couples with prior children.

Couples with high education were the most likely to having children, and among them, those with no prior children had the highest likelihood of having children in both union cohorts. Especially in the latter union cohort, the cumulative probability of having children among the highly educated couples with no prior children (57.9%) stood out from the groups that followed, that is, couples in the medium education group with no prior children (33.5%), couples with high education and at least one prior child (30.3%), and couples with medium education and at least one prior child (27.9%). Within educational groups, the difference in the probability of having children between couples with and without previous children was the greatest among those with high education.

[Table 3]

As among female same-sex couples, different-sex couples with no prior children were the most likely to have had at least one child during the five-year follow-up period (Table 3). While there was a strong educational gradient in childbearing among female same-sex couples with no prior children, no similar clear gradient was found among different-sex couples with no prior children. The probability of having a child in every educational group of female same-sex couples was lower than in any educational group of different-sex couples with no prior children. However, female same-sex couples with high education and no prior children in the latter union cohort had a higher probability of having children than any educational group of different-sex couples with prior children in either union cohort. The results are probably driven by the share of different-sex couples who had their first children during cohabitation before forming a marriage.

Discussion

This study adds to our knowledge regarding how socioeconomic resources are associated with female same-sex couples' fertility behavior. Using internationally unique register data, we showed that female same-sex couples' likelihood of having children has increased in Finland over time. Couples with a high level of education had a higher likelihood of having a child during the first five years of their first registered partnership, as compared with couples with a lower level of education. A positive association between female same-sex couples' educational level and childbearing patterns has been previously found in Sweden (Boye & Evertsson 2021), in the only previous statistical research exploring the association. However, our study is the first to show that the likelihood of highly educated couples having a child has increased over time relative to lower educated couples. Also, we found that the educational gradient in childbearing patterns was largely attributable to couples with no prior children by either woman.

Female same-sex couples' likelihood of having a child within five years of formalizing their union was higher for couples who registered their partnership between 2011 and 2015, as compared with those who registered their partnership between 2006 and 2010. This is the first time that the likelihood of having a child has been assessed for female same-sex couples in Finland, in a country where same-sex couples have had to bear all the costs of medically assisted reproduction themselves. The finding is in line with previous studies reporting increases in female same-sex couples' childbearing in other Nordic countries (Andersson & Noack 2010; Aldén et al. 2015; Kolk & Andersson 2020; Wiik et al. 2014). Based on what is known in other Nordic countries, it seems reasonable to assume that the observed increase reflects the legislative reforms that have decreased same-sex couples' barriers to fulfilling their parental intentions. The situation is specific to female same-sex couples, and their

fertility behavior seems to have developed in the opposite direction as compared with general childbearing patterns in Finland, where the birth rate fell sharply in the 2010s (Hellstrand et al. 2020).

Female same-sex couples with high education had a higher likelihood of having children during the first five years of their registered partnerships, as compared with lower educated couples. This is the first study to show that educational differences in childbearing are especially large among female same-sex couples, compared with different-sex couples. There are several possible reasons for the observed educational differences. We find it plausible that financial resources gained through a higher level of education play a crucial role in female same-sex couples' childbearing as their methods of conceiving increase the expenditures of having children (Boye & Evertsson 2021; Mamo 2007). In Finland, female same-sex couples have received assisted fertility treatments only at private clinics until recently. The costs of treatments are high, and highly educated couples may be more used to using the private health care sector compared with low-educated couples (Klemetti et al. 2007). While different-sex couples are reimbursed for the costs of assisted fertility treatments, this is not the case for most female same-sex couples whose reason for seeking treatments is not defined as medical but social. Similarly, in the U.S., defining infertility only medically in insurance and medical institutions has been shown to exclude same-sex couples from accessing fertility treatments (Bell 2016; Mamo 2007).

Couples' socioeconomic resources also influence fertility by affecting union dissolution (Jalovaara et al. 2021). Female same-sex unions are more likely than different-sex unions to end in dissolution, and dissolution risk is highest among the low-educated couples (Kolk & Andersson 2020; Wiik et al. 2014). Union instability has been linked to a lower likelihood of trying to have a child (Jalovaara & Fasang 2017; Kravdal & Rindfuss 2008), and it is possible

that its effect on childbearing is strong among female same-sex couples as they must agree, among other things, on the choice of the birth mother (Mamo 2007). There are also other complementary explanations for female same-sex couples' educational differences in childbearing, related to highly educated couples' better access to information and their better capacity to use the information in dealing with medical and legal institutions (Bell 2016; Mamo 2007; Moore 2011), more flexible jobs in terms of family life (Mezey 2008) and their better position for dealing with the stigma related to their parenthood (Goldberg 2009), for instance. The extent to which different parental intentions could explain differences in fertility between educational groups is not known. The literature on educational differences in relation to female same-sex couples' parental intentions is scarce and has not provided any consistent conclusions on the association (Costa & Bidell 2017; Tate et al. 2019).

The proportion of highly educated couples having a child during the first five years of the registered partnerships increased relative to lower educated couples in the union cohort of 2011–2015, as compared with the union cohort of 2006–2010. This important finding goes beyond the earlier work. We find it possible that the observed growing educational differentiation in childbearing driven by highly educated couples mainly reflects their better opportunities for taking advantage of the changing legal and social environment for childbearing. Legal recognition of same-sex unions and access to assisted reproductive technology have reinforced a nuclear family form among female same-sex couples (Gabb 2018), and in Finland, the two-parent family form is juridically and socially the most convenient option for them (Anttila et al. 2021; Moring 2013). Achieving pregnancy without known donors or involved fathers has become possible with assisted reproduction technology (Donovan & Wilson 2008; Mamo 2007), but the cost of treatments has been steadily increasing. Intersectional social locations influence which women can access the treatment methods needed to pursue their desired family form (Rogalin & Brooks 2018). Couples with a

better socioeconomic status are increasingly relying on specialists instead of self-help options to conceive, and have moved from low-technology solutions, such as home insemination with the help of a known donor, to purchasing more effective high-technology services carried out at clinics (Mamo 2007).

Differences and changes in childbearing patterns across educational groups and over time may partially reflect the changing age distribution of the couples studied. The young ages of the low-educated women may partially explain their lower levels of childbearing and its additional decrease in the later union cohort. However, the observed increase in the childbearing of highly educated couples also seems strong. This is noteworthy, given that it suggests that childbearing may have increasingly become a privilege more easily accessible to couples with sufficient resources.

Finally, we find interesting and somewhat unexpected that the educational gradient in childbearing was largely attributable to the couples with no prior children by either woman. Of all female same-sex couples, the highly educated couples with no prior children had the highest likelihood of having a child during the first five years of the registered partnership. In Sweden, female same-sex couples without prior children have previously been shown to have a higher likelihood of having a child (Boye & Evertsson 2021). However, this study is the first to demonstrate the interconnectedness of educational level and the existence of prior children in female same-sex couples' childbearing, revealing even greater differentiation. The finding suggests that the role of educational level in fertility behavior is different for female same-sex couples with and without prior children, and it likely also reflects other differences between the couples.

This study demonstrates how intersectional factors shape female same-sex couples' fertility. Our findings seem to be in line with the argument that the most highly determining factor in

female same-sex couples' access to parenthood was previously the uneven institutional structures affecting all those couples and has now been replaced by the ability to pay (Gabb 2018; Mamo 2007). In Finland, the availability of the public health sector's more affordable fertility treatments may increase the likelihood of having children for low-educated couples. However, better-off couples can reduce waiting times and receive additional cycles of treatments by changing over to private clinics (Klemetti et al. 2007), while less privileged couples may be forced to limit the number and type of treatments they seek (Smith et al. 2011).

Strengths and Limitations

The main strength of this study is its high-quality and generalizable population-level register data, which enabled research on within-group differences even among a relatively small population of female same-sex couples. This is important because the challenges of same-sex couples seeking to become parents cannot be understood by studying only privileged subgroups (Rogalin & Brooks 2018). This is often the case in survey and interview data where the number of same-sex couples reached may remain low (Festy 2007) and samples may be biased regarding socioeconomic diversity (Reczek 2020). Our data provides register-based information on the educational composition of women entering same-sex unions. We found that the educational level of women entering same-sex unions does not significantly differ from that of women entering different-sex unions in Finland. This is important because if we have a false perception that lesbian women are exceptionally highly educated, we may overestimate the resources they have and underestimate the barriers they encounter in their routes to parenthood.

Our study has a number of limitations. First, since the register data does not contain information on individual values or subjective experiences (Kolk & Andersson 2020), we do

not know about the couples' parental intentions. Neither do we know the reasons for the choices the couples made, nor the actual explanations for what we observed. Second, given that Finland is a country where a high proportion of couples prefer cohabitation to marriage (Schnor & Jalovaara 2020), we might be dealing with a selective sample of couples because our data does not include cohabiting couples. Since female same-sex couples' decisions to register their partnerships have been found to be linked with their intentions to have children (Aldén et al. 2015), the small number of low-educated couples in our data may be partly explained by their choice to not register the partnership knowing they lack sufficient resources to have a child. In this case, educational differences in childbearing patterns among female same-sex couples, including cohabiting couples, might be even greater than this study suggests. Third, the childbearing patterns of female same-sex couples and different-sex couples who entered legal unions are not directly comparable. The relationship between a marriage and a first birth is different for different-sex couples, among whom it is increasingly common to have a first child during cohabitation (Sobotka & Toulemon 2008). Finally, we only examined births within the first five years of forming a legal union, leading to a possible underestimate of the fertility of young and low-educated women who may postpone childbearing.

Conclusions

The increase in female same-sex couples' likelihood to have children seems to be mostly driven by couples with a high level of education, especially by those with no prior children. Even if the legal recognition of same-sex parenthood has been important in improving couples' possibilities of achieving family life with children, it seems that the new opportunities have not been equally accessible to all female same-sex couples. This suggests that prevailing concerns about the increasingly marginalized position of low-educated women

in terms of socioeconomic resources, union formation, and fertility (Adserà 2017; Jalovaara et al. 2019), might also be valid for women in same-sex partnerships. Future research should continue to make use of the intersectional framework and include a wider selection of social categories, such as income level, in their analyses to advance our understanding of the privileges and disadvantages related to female same-sex couples' childbearing patterns. This study contributes to the research field by showing that family relationships are increasingly dependent on union-formation patterns and a certain level of financial and educational resources and less dependent on biology. The routes to parenthood that same-sex couples pursue may also be an indication of increasing diversity and inequality in contemporary patterns of family formation and parenthood.

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Tables

Table 1. Characteristics of female same-sex couples who entered registered partnerships and different-sex couples who entered marriages in Finland in 2006–2010 and 2011–2015.

	Female same-sex couples		Different-sex couples	
	2006–2010	2011–2015	2006–2010	2011–2015
	N=577	N=841	N=93,138	N=79,355
Age (years, mean)				
Younger women in same-sex couples	30.3	29.2		
Older women in same-sex couples	35.0	33.5		
Women in different-sex couples			28.1	28.4
Educational level (%) ^a				
Low or unknown education ^b	5.5	8.0	3.6	3.7
Medium education ^c	34.3	31.7	39.6	39.3
High education ^d	60.1	60.3	56.7	57.0
At least one partner has a prior child (%)	23.4	21.6	37.5	38.6

^aThe highest education completed by either partner

^bPrimary and lower secondary education

^cUpper secondary education

^dTertiary education

Table 2. Share (%) of female same-sex couples and different-sex couples having at least one biological child of either partner before same-sex partnership registration or different-sex marriage in 2006–2010 and 2011–2015, by the couple-level educational level.

	Female same-sex couples		Different-sex couples	
	2006–2010	2011–2015	2006–2010	2011–2015
	N=577	N=841	N=93,138	N=79,355
Low or unknown education ^a	34.4	6.0	50.8	44.5
Medium education ^b	26.3	27.3	46.1	47.3
High education ^c	20.7	20.7	30.6	32.1

^aPrimary and lower secondary education

^bUpper secondary education

^cTertiary education

Table 3. Cumulative probability (%) of having a child within the first five years of same-sex registered partnership or different-sex marriage by the union cohort, the existence of prior children and the couple-level educational level.

	Female same-sex couples		Different-sex couples	
	2006–2010	2011–2015	2006–2010	2011–2015
	N=577	N=841	N=93,138	N=79,355
No prior children	36.2	47.1	74.0	71.7
Prior children	26.2	28.8	55.2	53.2
No prior children				
Low or unknown education ^a	18.2	8.0	64.3	65.8
Medium education ^b	28.4	33.5	68.3	66.0
High education ^c	41.5	57.9	77.4	74.9
Prior children				
Low or unknown education ^a	39.4	0.0	54.1	51.2
Medium education ^b	22.3	27.9	52.9	50.8
High education ^c	28.0	30.3	57.7	55.8

^aPrimary and lower secondary education

^bUpper secondary education

^cTertiary education

Figures

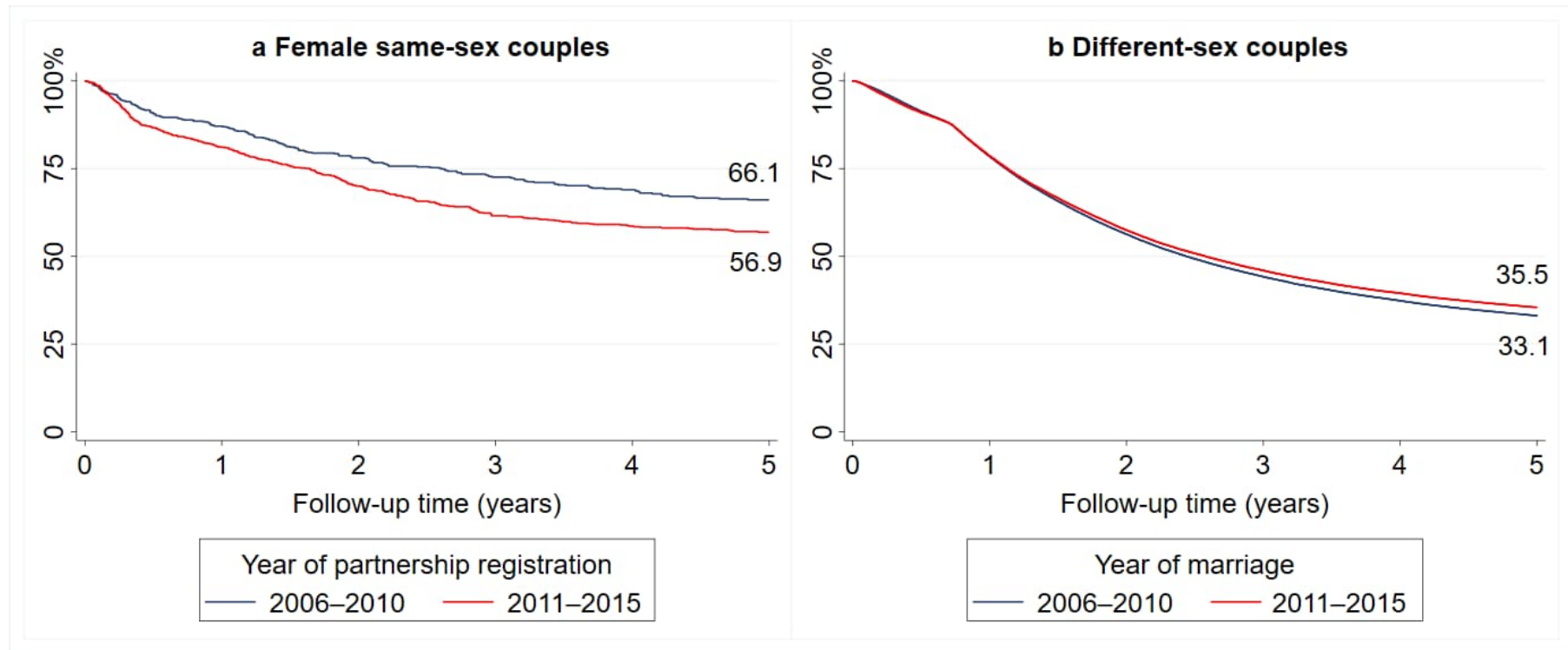


Figure 1. Kaplan-Meier estimates for the birth of a first child among female same-sex couples (a) and different-sex couples (b), by the year of partnership or marriage registration in 2006–2010 or 2011–2015.

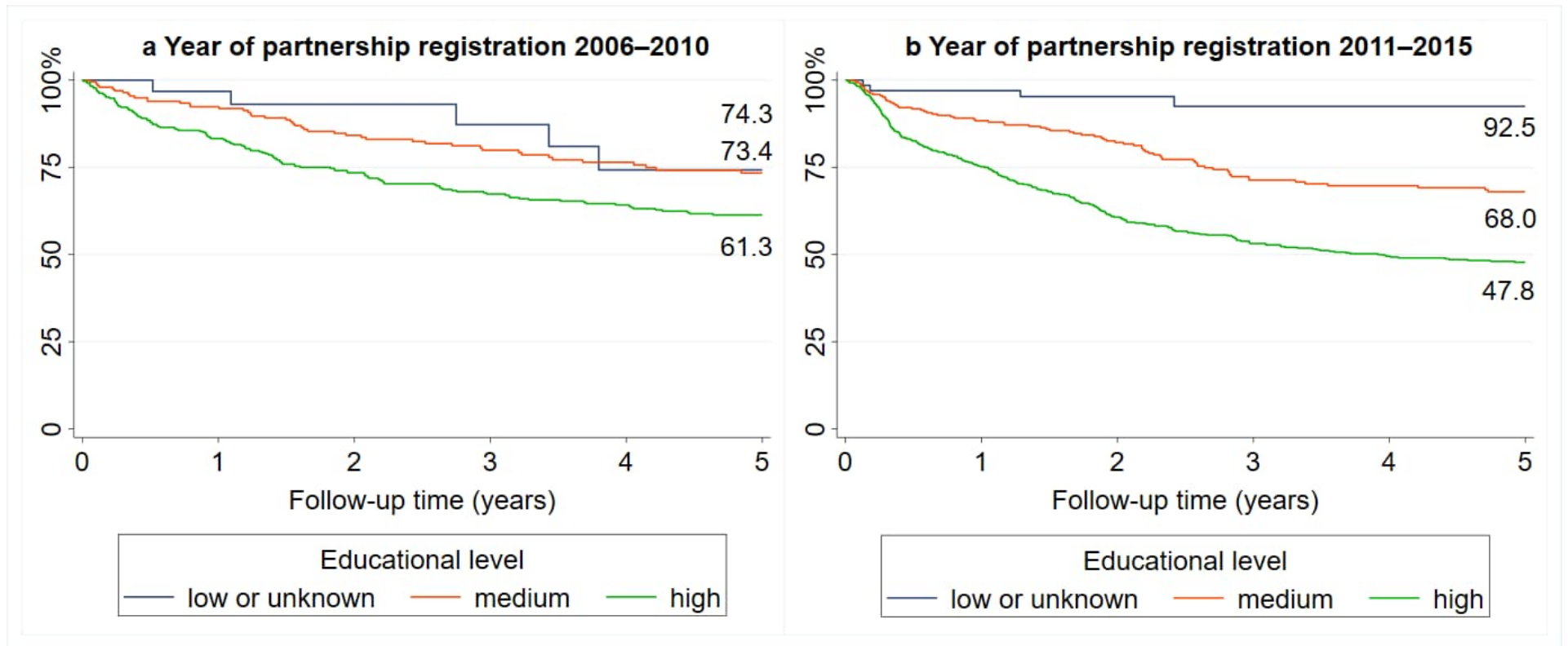


Figure 2. Kaplan-Meier estimates for the birth of a first child of female same-sex couples, by the couples' educational level and year of partnership registration between 2006–2010 (a) or 2011–2015 (b).

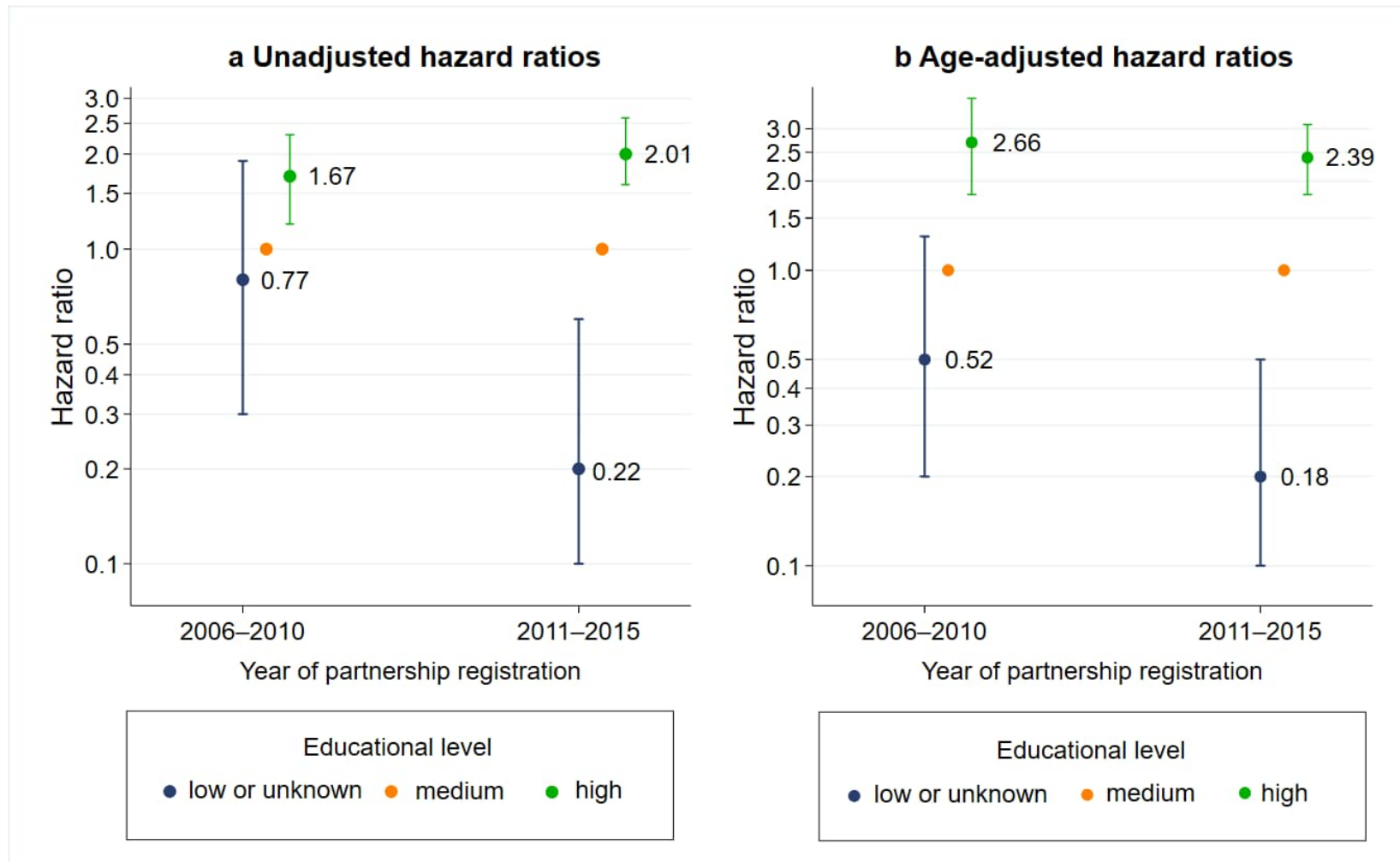


Figure 3. Hazard ratios and 95% confidence intervals for female same-sex couples' childbearing without (a) and with adjustment (b) for the age of a younger woman by the couples' educational level and year of partnership registration between 2006–2010 or 2011–2015. Medium-educated couples are the reference group.

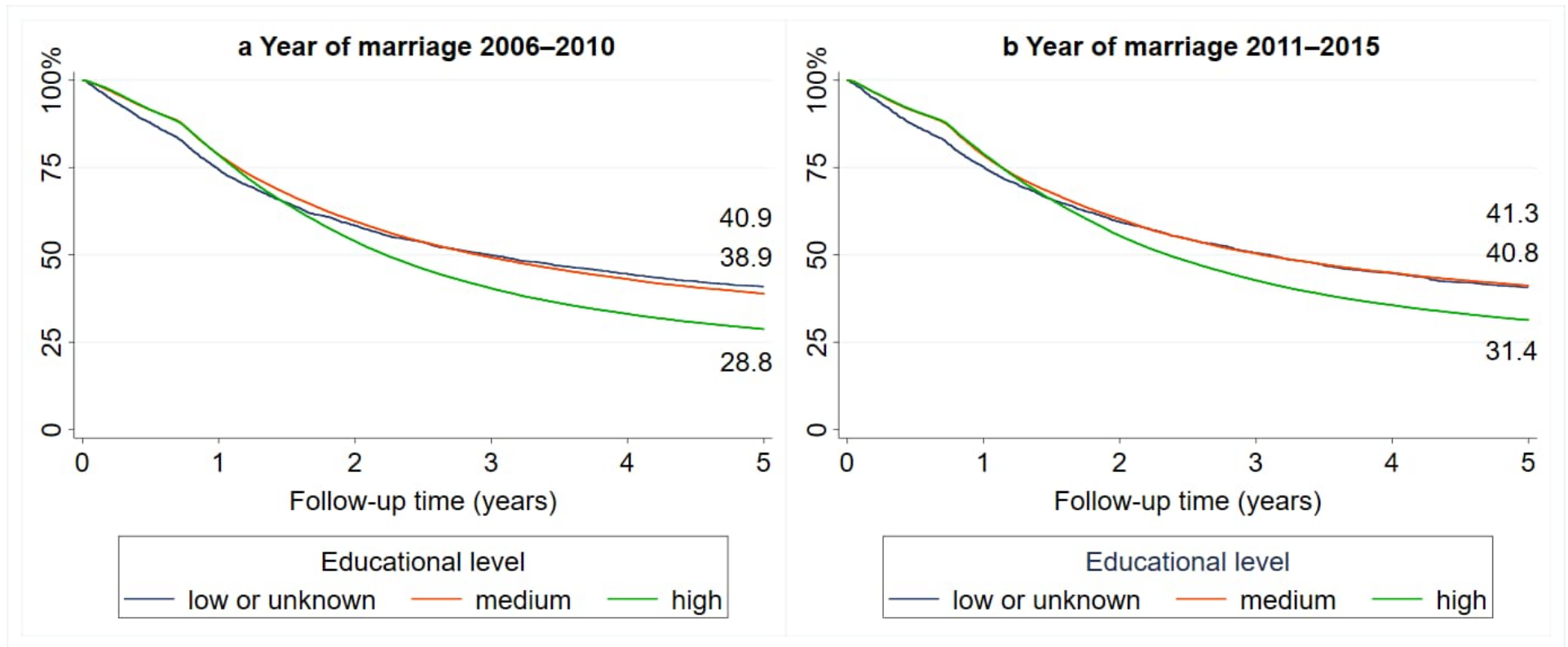


Figure 4. Kaplan-Meier estimates for the birth of a first child of married different-sex couples, by the couples' educational level and year of marriage between 2006–2010 (a) or 2011–2015 (b).

Online Appendix

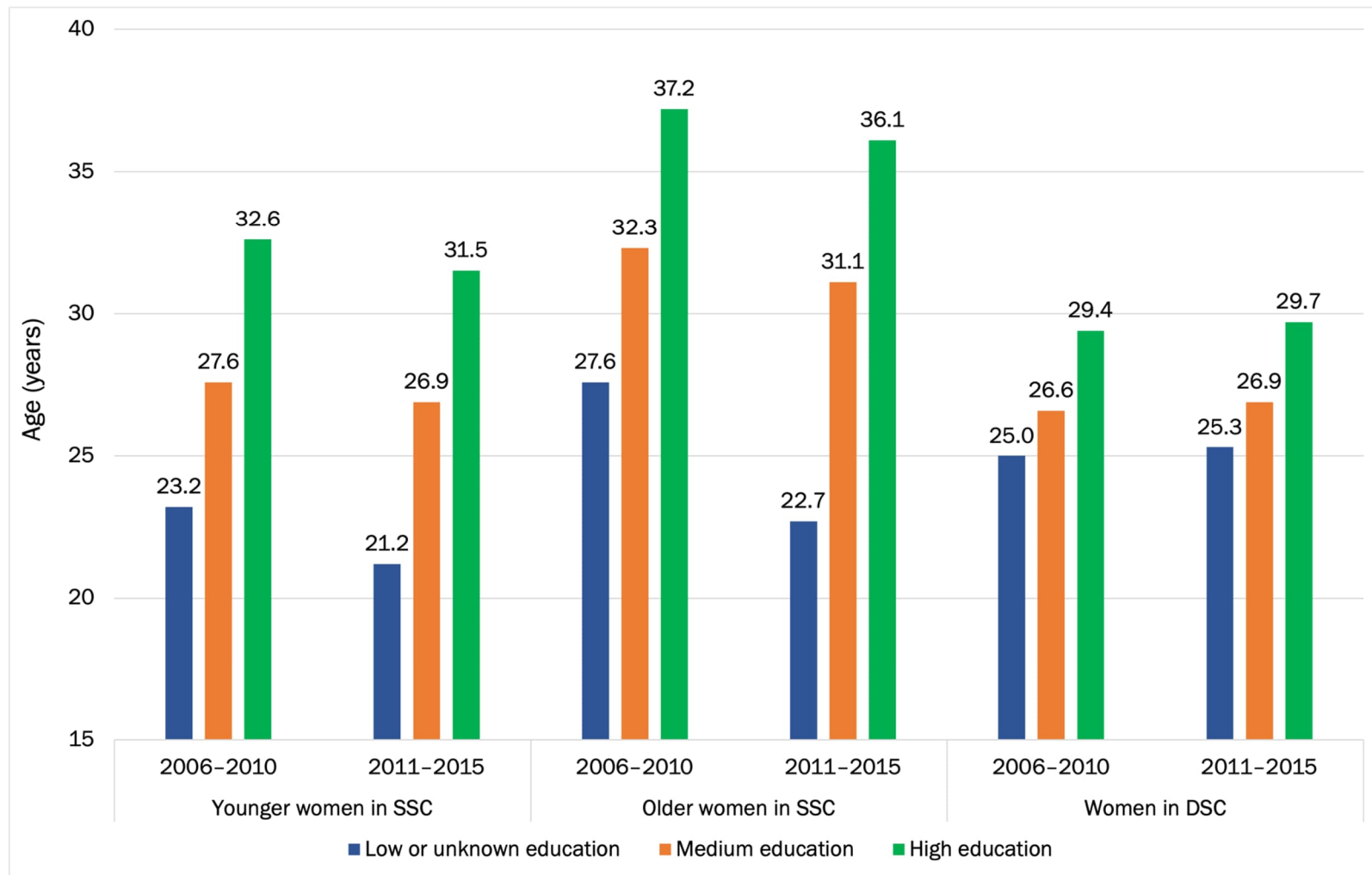


Figure A1. Mean ages of women in same-sex couples (SSC) and different-sex couples (DSC), by the couple-level educational level and the year of partnership registration or marriage in 2006–2010 or 2011–2015.