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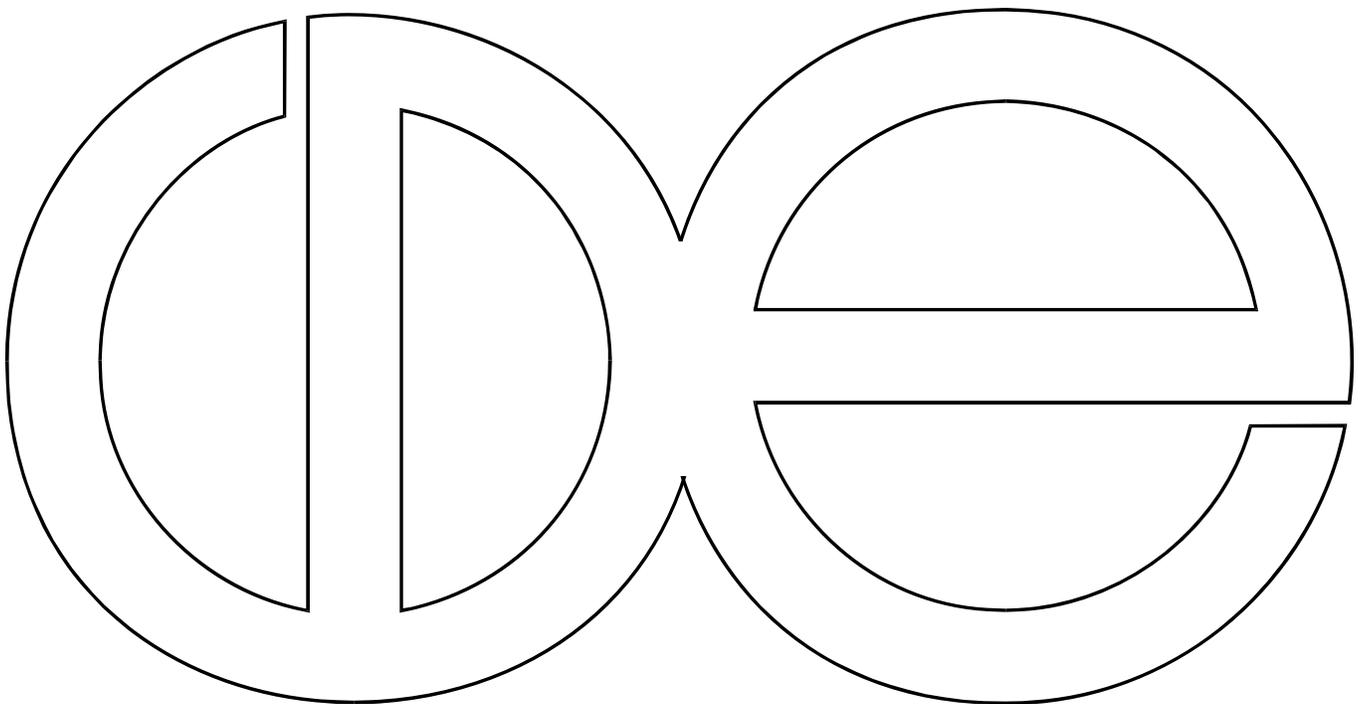
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Revisiting the Relationship between Pregnancy Intentions and Timing: The Mediating Role of Cohabitation

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Revisiting the relationship between pregnancy intentions and timing:

The mediating role of cohabitation

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Abstract

The increase in nonmarital childbirth in Western countries has created more divergence in the order of family formation and has especially increased the ordering "cohabitation - childbirth - marriage". However, in countries with a strong linkage between childbirth and marriage, another type of ordering has emerged, namely, "cohabitation - pregnancy - marriage - childbirth." The increase in this type of family formation may be unintended, as previous research has found that premarital pregnancy is likely to be unintended, but it can also be an intentionally chosen life trajectory. Our main aim in this study is to investigate whether pregnancy for Japanese women who have followed the order "cohabitation - pregnancy - marriage - childbirth" is less, equally, or more intentional than that of women who follow different family formation sequences. The results from data on heterosexual females in their first marriage from the 14th round of the Japanese National Fertility Survey show that women who cohabited premaritally are more likely to report that their premarital pregnancy was intended. Previous research tends to focus on the *rates* of events, such as nonmarital childbirth and premarital pregnancy, but through investigating the *order* of family formation, we found that the association between bridal pregnancy and a lack of intentionality is heterogeneous depending on their cohabitation experience.

Keywords: Family formation, Bridal pregnancy, Pregnancy intention, Cohabitation, Japan

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INTRODUCTION

The increase in nonmarital childbirth, one of the most important phenomena in the Second Demographic Transition (Lesthaeghe 2010), has been observed in many high-income countries for decades. For example, the EU-28 average increased substantially between 2005 and 2016, from 33.0% to 42.6% (Eurostat 2018), and the United States has had a similar trend to the EU average, from 26.4% in 1970 to 44.3% in 2013 (Department of Health and Human Services 2018).

Given this increase, a growing number of studies suggest that marriage has decoupled from childbearing (Kiernan 2001; Lesthaeghe 2010; Raley 2001; Smock and Greenland 2010; van de Kaa 2001). These studies have often discussed changes in family formation, mainly focusing on *rates of events*. However, the implications of the increase in nonmarital childbirth are not fully captured through the examination of *rates* but rather through the study of the changing *order* of significant family formation events, i.e., cohabitation, marriage, and childbirth (Perelli-Harris et al. 2010, 2012; Holland 2013, 2017). For example, Perelli-Harris et al. (2012) show that women increasingly enter motherhood through different paths, but more than 60% of women get married before or after her first birth, which indicates that the order "cohabitation - childbirth - marriage" has increased in European countries.

Do we find this diverging order of entry into motherhood, which is also understood as a destandardization of family-life trajectories (Elzinga and Liefbroer 2007), in other contexts? In this study, we examine the Japanese case, which is characterized by strong ties between

childbearing and marriage. Although it is expected that the nonmarital fertility rate is low in so-called "strong family" countries (Reher 1998), new family formation patterns have also emerged in these countries. Figure 1 shows four major types of life course trajectories of entry into motherhood. The most common pathway in motherhood has been "noncohabitation - marriage - pregnancy - childbirth" ((a) in Figure 1), as the Japanese nonmarital childbirth rate is still negligible, i.e., 2.2% even in 2017 (National Institute of Population and Social Security Research 2019). However, instead of nonmarital fertility, bridal pregnancy among first births (which we define as the order "pregnancy - marriage - childbirth" ((c) and (d) in Figure 1), has increased to 25.3% in 2009 from 12.6% in 1980 (Ministry of Health Labour and Welfare 2000, 2010). Therefore, the family formation patterns among women with bridal pregnancies have been given more attention in recent years (Iwasawa and Kamata 2014; Uchikoshi and Mogi 2018).
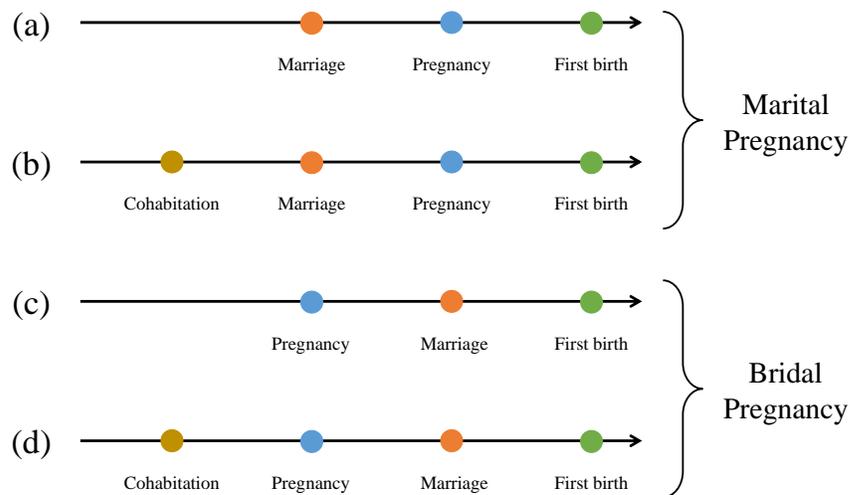
Figure 1: Four major pathways of entry into motherhood prevailing in Japan

In addition, cohabitation in Japan has increased in recent decades (Kojima 2009; Raymo et al. 2009; Nakagawa 2017). Although it has been considered a "prelude to marriage" rather than an alternative to marriage (Raymo et al. 2009), the increase in the number of couples with cohabitation experience before marriage complicates our understanding of family trajectories by producing paths that place cohabitation before conception or marriage ((b) and (d) in Figure 1). Our first aim of this paper is to describe the prevalence of those four major types of life course trajectory.

An important question regarding the growing flexibility of the order of family formation behaviors is whether a given path is chosen intentionally or not. A path in Western countries that is occurring with increasing frequency – "cohabitation - childbirth - marriage" – is often an intentionally chosen family life course (Manning 2001; Hiekel and Castro-Martín 2014). However, as bridal pregnancy is an "event-oriented" phenomenon (Knab and Harknett 2006), pathways c and d are more likely to be unintended (Raymo et al. 2015). Therefore, one might think that an increased frequency of the order (d), "cohabitation - pregnancy - marriage - childbirth," is a byproduct of increases in the prevalence of cohabitation. However, this could also be an intentionally chosen life trajectory. Examining the pregnancy intention is important because unintended births are associated with several negative outcomes (Barber et al. 1999; Barber and East 2009; Crissey 2005; Knab and Harknett 2006; Teachman 2002; Su 2012), thus bridal pregnant women and their children in Japan may face such negative outcomes in their life course. Therefore, the second aim of this study is to investigate whether the conceptions of women who have followed order (d), or "cohabitation - pregnancy - marriage - childbirth", are less, equally, or more intentional than those of women who have taken other sequences, especially the most common

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order, namely, (a) "marriage - pregnancy - childbirth," by comparing pregnancy intentions for first births of mothers who followed the different pathways described in Figure 1.

CONTEXTUAL BACKGROUND

Unintended bridal pregnancy

While the proportion of women who get pregnant before marriage has increased, it may be largely explained by an increase in unintended pregnancy. Raymo and his colleagues (2015) found that bridal pregnancy is highly likely to occur unintentionally in Japan. A relationship between bridal pregnancy and intentions to become pregnant prior to pregnancy was also observed in the United States (Lichter et al. 2016).

In the Japanese context, this finding may be explained by the situation of contraceptive use. The most common contraceptive methods have been condoms or withdrawal, even though hormonal contraception (e.g., the pill) was authorized by the Japanese Ministry of Health, Labor, and Welfare in 1999. Indeed, more than half of never-married women do not use effective contraceptive methods such as the pill, even if they do not intend to become pregnant at the present time (Konishi and Tamaki 2016). They further argued that there is an educational gradient in contraceptive use: university-educated women are less likely to use unreliable contraception or no contraception (Konishi and Tamaki 2016). These socioeconomic gradients are thus also found in consequences: women with lower education are more likely to report having had an abortion (Raymo et al. 2015). Unintended births are well known to associate with negative outcomes for both parents and children, such as mother's lower well-being (Barber et al. 1999; Su 2012), fewer parental resources to the child (Barber and East 2009), higher divorce risk (Knab and Harknett 2006; Teachman 2002), and child's lower health (Crissey 2005).

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Mediating role of cohabitation

However, research on fertility intentions in Europe and the United States suggests that the association between pregnancy intentions prior to pregnancy and bridal pregnancy may differ if we take cohabitation into account. In the United States, more than half of women who conceived their first birth within a cohabitating relationship reported that the pregnancy was intended, whereas few women who conceived their first child before marriage without cohabitation classified the birth as intended (Manning 2001). Research across Western and Eastern European countries has indicated that cohabiters who considered their union to be a prelude to marriage are the most likely to plan to have a child near future (Hiekel and Castro-Martín 2014). This is presumably because couples who anticipate their marriage in the near future are more likely to make relationship-specific investments, i.e., planning to have a child (Hiekel and Castro-Martín 2014).

Recently, cohabitation has become more common in Japan. A current summary of the national census shows that the number of cohabiting households has increased from 36,570 (0.1% among all households) in 1980 to 295,410 (0.6%) in 2010 (Nakagawa 2017). The definition of cohabiting household in the census is a household consisting of two unmarried, unrelated people of different sexes over the age of 20. Thus, this definition includes other types of living arrangements, such as living with friends, in the category of cohabiting households. However, this increasing trend has been observed in other surveys that have defined cohabitation in a more direct way (Kojima 2009; Raymo et al. 2009). For example, Kojima (2009) shows that the number of people aged 20 to 49 who had ever cohabited and who were cohabiting at the time of the survey increased from, respectively, 13.2% in 2005 to 22.5% in 2009 and 0.9% in 2005 to 2.9% in 2009.

A cohort trend also indicated an increase in cohabitation from 10% in 1954-1959 birth cohorts to 21% in 1975-1979 birth cohorts (Raymo et al. 2009).

In addition, cohabitation in Japan can be understood as a prelude to, rather than a substitute for, marriage (Raymo et al. 2009). Japanese couples get married before childbirth regardless of whether they cohabited before or not. However, a notable difference between cohabiters and non-cohabiters is that cohabiters are more likely to conceive before their marriage (Raymo et al. 2009). Furthermore, Japanese women who cohabited before marriage may have more flexible ideas about family formation. In general, Japanese women have a negative opinion regarding the order of marriage and childbearing (Hertog 2009; Hertog and Iwasawa 2011). However, Raymo et al. (2009) compared several values between cohabiters and non-cohabiters and found that women who cohabited before marriage are more likely than non-cohabiters to disagree with the opinion that it is the best to marry in response to pregnancy. Although this question refers to nonmarital childbirth, cohabiters may also be less likely to attach a negative image to bridal pregnancy. Specifically, we expect to see that women who experienced cohabitation before marriage are more likely to have an intended bridal pregnancy than women without such experience with cohabitation.

RESEARCH QUESTIONS AND HYPOTHESES

Our goal in this study is to analyze the interaction between cohabitation experience and bridal pregnancy with pregnancy intentions. Regarding the general association of bridal pregnancy with pregnancy intentions, we first hypothesize that births resulting from bridal pregnancy are more likely to be reported as unintended than are other types of births (H1). This is an empirical replication of Raymo et al.'s (2015) findings. Second, we tested whether premarital cohabitation is positively associated with pregnancy intentions. Previous research on pregnancy intentions

suggests that cohabiters have higher intentions prior to pregnancy (Hiekel and Castro-Martín 2014; Manning 2001). Thus, our second hypothesis is that women's cohabitation experiences with their current husbands are positively associated with the likelihood of intended pregnancies (H2).

Third, we propose that the association between bridal pregnancy and a lack of intentionality may be heterogeneous depending on their cohabitation experience. In other words, bridal pregnancy is associated with unintended births, especially for those who did not cohabit before marriage (H3). This phenomenon occurs because Japanese cohabiters are more likely to have liberal values regarding family issues (Raymo et al. 2009); thus, they are less likely to have a negative image attached to bridal pregnancy. Therefore, we hypothesize that women who have had a cohabitation experience are more likely to become intentionally pregnant before marriage.

DATA AND METHOD

Data

To investigate these hypotheses, we used data from the 14th round of the Japanese National Fertility Survey (JNFS) conducted in 2010. The JNFS targets two subsamples: single men and women and currently married women (heterosexual marriages). We used the survey for married women because the survey for single women does not include information about pregnancy history and intentions. Additionally, we limited our sample to women in their first marriage. Thus, our analysis does not represent women who have ever been divorced or widowed. This is a large nationally representative survey of 18-49 year-old married women and contains information about pregnancy history, marital history, and sociodemographic characteristics. In the pregnancy history module, each pregnancy intention was asked retrospectively as "What were your intentions prior this pregnancy?" Information on the month of marriage and first allows us to define bridal

pregnancies using conventional assumptions (births that occur within the first seven months of marriage, as we discuss below).

The JNFS response rate is high (86.7%), making it the most suitable data to achieve the aims of this study. This survey asked questions about each pregnancy (the first to the fifth), i.e., the result of the pregnancy (birth, miscarriage, abortion, still pregnant), the date of childbirth (the age of miscarriage or abortion, the due date), and pregnancy intentions. The analytical sample was women who had only been married once to never-married men and whose first pregnancy did not result in miscarriage or abortion. Therefore, this study omits women who experienced nonmarital childbearing[1]. After the omission of observations with missing data, the analytical sample is comprised 4,680 currently married women with at least one child.

Variables

The key variables in this study are bridal pregnancy, premarital cohabitation experience, and pregnancy intentions for the first child. Bridal pregnancy can be defined in several ways. The most common way is childbirth within seven months of marriage (Akerlof et al. 1996; Iwasawa and Kamata 2014; Kamata 2006, 2012; Ruzicka 1976), whereas there are also studies using an eight-month definition (Raymo and Iwasawa 2008; Raymo et al. 2015) and a nine-month definition (Ministry of Health Labour and Welfare 2000, 2010). We use the most commonly used definition, i.e., seven months, in this study.

The 14th round of the JNFS for currently married women included questions about their cohabitation experience with their current husband. Pregnancy intentions prior to each pregnancy

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[1] Nonmarital childbirth is 54 cases (1%) and the distribution of retrospective intention of first pregnancy among nonmarital childbirth is similar with the one among bridal pregnancy, which intended: 23 cases (43%), nonintended: 11 cases (20%), not planned: 20 cases (37%).

were measured retrospectively in the JNFS. As explained in Raymo et al. (2015), the question is "What were your intentions prior to this pregnancy?", and the possible answers are "I wanted a child right away" (to which we refer as *intended*), "I was not intending to get pregnant yet" (we refer to mistimed births as *unintended* births), and "I was not really thinking about it" (*not planned*). There is another response option: "I did not intend to ever become pregnant *again*", but this response is not applicable because this study focuses on the first pregnancy. In addition to intended and unintended pregnancies, we examine not planned pregnancies, which may reflect Japanese uncertainty in the intendedness of births (Tsuya et al. 2013; Raymo et al. 2015).

Method

To predict the impact of the bridal pregnancy and premarital cohabitation on the intentions of the first pregnancy at the first birth, we used multinomial logit models. The models are formulated as follows:

$$\ln\left[\frac{p_{ij}}{1 - p_{i1}}\right] = \beta_{0j} + \sum_{k=1}^{K} \beta_{kj} X_{ki} + \varepsilon_{ij},$$

where j is a dependent outcome, which is 1 (*intended*), 2 (*unintended*), and 3 (*not planned*). Thus, p_{ij} is the probability that the ith woman ends up with the outcome j ($j \neq 1$). β_{0j} is an intercept for outcome j, β_k is a series of coefficients and X_k is individual variables.

Our modeling strategy is as follows. First, we consider the association between bridal pregnancy and premarital cohabitation with the current husband to test H1, using the wife's educational attainment (less than high school, two-year college, and university degree or more) as the control variable. Educational attainment was included because we assume that education plays a role as a confounder in the relationship between bridal pregnancy and pregnancy intentions.

Specifically, previous studies revealed that bridal pregnancy is concentrated among the less-educated population (Kamata 2006; Otani 1993; Raymo and Iwasawa 2008; Uchikoshi and Mogi 2018). Wife's educational attainment is negatively associated with unintended pregnancy (Raymo et al. 2015). Thus, educational attainment may confound the association between bridal pregnancy and pregnancy intentions. In the second model, the interaction term between bridal pregnancy and cohabitation is included to test the hypothesis that the relationship between bridal pregnancy and intentions depends on cohabitation experience. The distribution of variables used in this study is shown in Table 1.

Table 1: Sample characteristics by pregnancy intentions prior to the first pregnancy

	Intended	Unintended	Not planned	Total
Educational attainment (wife)				
Less than high school	0.59	0.12	0.28	0.43
Two year college	0.66	0.10	0.23	0.40
University or more	0.64	0.11	0.25	0.16
Pregnancy timing				
Marital pregnancy	0.70	0.07	0.23	0.79
Bridal pregnancy	0.35	0.27	0.38	0.21
Premarital cohabitation				
With cohabitation	0.61	0.13	0.26	0.15
Without cohabitation	0.63	0.11	0.26	0.85

Source: Authors' calculations based on 14th JNFS data.
Note: Each column except the total shows the row percentage. The column total shows the percentage of each variable.

RESULTS

Descriptive results

Table 2 presents the distribution of women by premarital cohabitation and pregnancy timing. It shows that the order "marriage - pregnancy - childbirth" (marital pregnancy without cohabitation; (a) in Figure 1) is the most common (69%), followed by the order "pregnancy - marriage - childbirth" (bridal pregnancy without cohabitation; (c) in Figure 1) (16%). While the married women who cohabited before marriage comprise a minority of the sample (15%), the paths "cohabitation - marriage - pregnancy - childbirth" ((b) in Figure 1) and "cohabitation - pregnancy - marriage - childbirth" ((d) in Figure 1). Those who cohabited before getting married to their current husbands have a 16 percentage point higher prevalance of bridal pregnancies (35% = 245/694) than women without cohabitation (19% = 758/3986). This is consistent with the results presented by Raymo et al. (2009).

Table 2: The distribution of cohabitation with current spouse and pregnancy timing

	Marital pregnancy	Bridal pregnancy	Total
Without cohabitation	3228	758	3986
	(68.97)	(16.20)	(85.17)
With cohabitation	449	245	694
	(9.59)	(5.24)	(14.83)
Total	3677	1003	4680
	(78.57)	(21.43)	(100.00)

Source: Authors' calculations using the 14th round of JNFS data.
Note: The number inside the parentheses is the percentage of each value.

What is the relationship between premarital cohabitation, pregnancy intentions, and pregnancy timing vis-à-vis marriage? Figure 2 shows the relationship between intentions for the first pregnancy, cohabitation, and bridal pregnancy. The first pregnancy is more likely to be

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unintended among women who conceived before marriage than among women who became pregnant subsequent to marriage, regardless of cohabitation experience. This finding indicates that the pattern of pregnancy intentions differs more by pregnancy timing than by premarital cohabitation experience. However, women who cohabited before marriage were more likely to be intentionally pregnant before marriage (42%) than were women who did not cohabit (34%). So far, those descriptive results seem to support our hypotheses. We further investigate whether this relationship is confirmed after controlling for the other covariates using multinomial logit models.
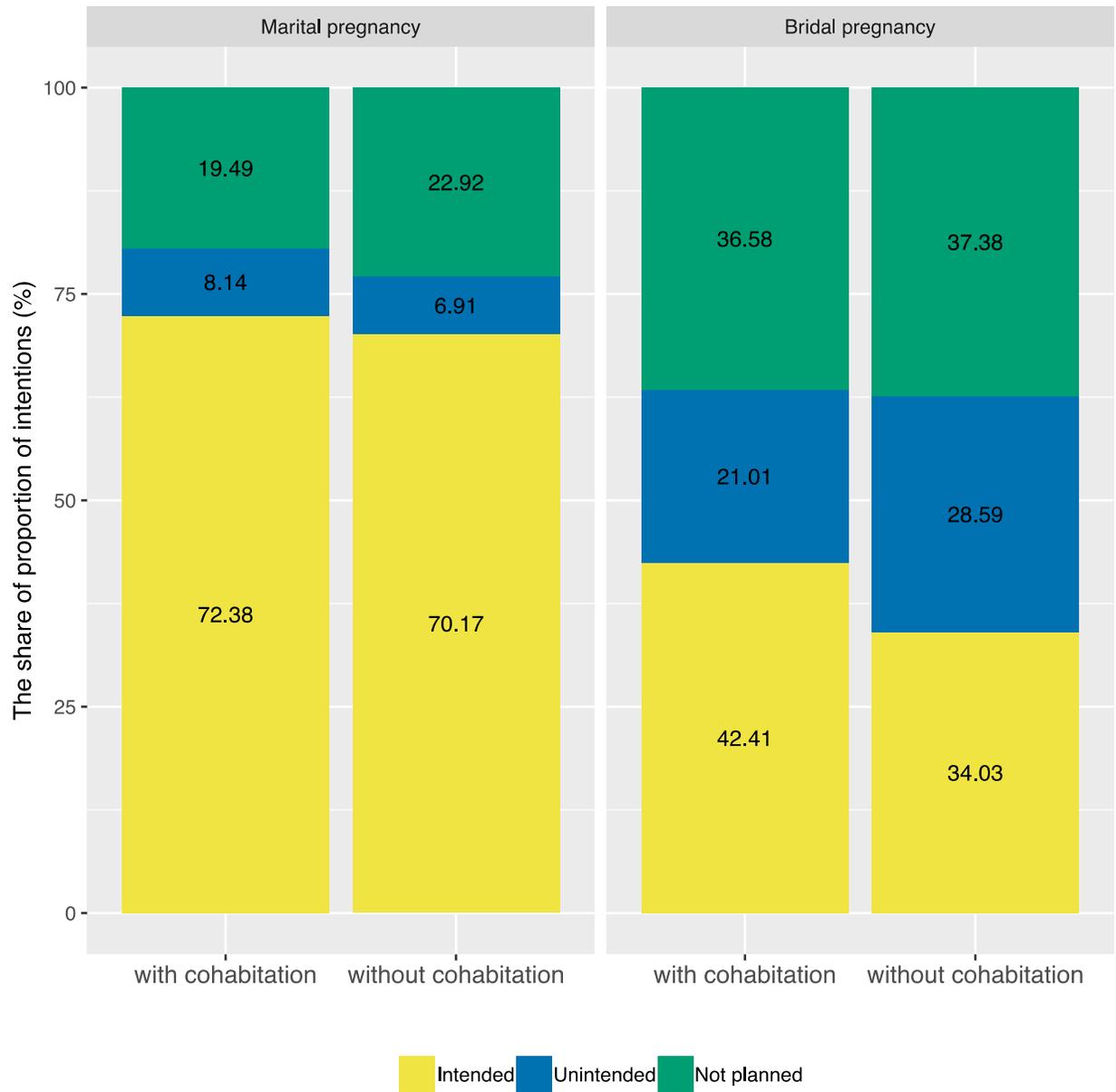
Figure 2: The proportion of the intended first pregnancies at the first births by pregnancy timing and cohabitation experience.

Source: Authors' calculations using the 14th round of JNFS data.

Multivariate regressions

Table 3 presents the results of multinomial logistic models. First, as expected, bridal pregnancy *per se* has a positive association with unintended pregnancy at first birth compared to intended pregnancy in all models. This finding indicates that bridal pregnancy occurs more unintentionally than intentionally, as our descriptive analysis in Figure 2 shows. This result is consistent with findings shown in previous research (Raymo et al. 2009) and supports our first hypothesis (H1). Second, premarital cohabitation with the current spouse is negatively associated with the likelihood of unintended pregnancy at the first birth and this is also consistent with the findings from Western countries (Hiekel and Castro-Martín 2014; Manning 2001). However, it does not statistically significant, thus, H2 is not supported.

To test our last hypothesis, an interaction term was added to Model 2 in Table 3 between bridal pregnancy and premarital cohabitation experience. Among those who did not cohabit with their current husbands, bridal pregnancy was positively related to unintended pregnancy (2.250, with statistical significance at 0.1%), but cohabitation experience prior to marriage decreased the positive impact of bridal pregnancy by 0.783 (the total coefficients were 2.250 + 0.237 - 0.783 = 1.704), suggesting that bridal pregnancy is more likely to be intended among women who cohabited ((d) in Figure 1) than among women who did not ((c) in Figure 1). These results suggest that the positive effect of bridal pregnancy on unintended pregnancy is partially offset by cohabitation experience. This result supports hypothesis H3.

Table 3: Results of the effects of bridal pregnancy and cohabitation on the pregnancy intentions at first birth, estimated by multinomial logit models (ref: Intended)

	Unintended	Not planned
Model 1 (AIC: 7,820)		
Educational attainment		
(ref: Less than high school)		
Two-year college	-0.078	-0.210**
	(0.111)	(0.077)
University or more	0.256+	0.008
	(0.146)	(0.101)
Bridal pregnancy	2.114***	1.197***
	(0.108)	(0.086)
Cohabitation	-0.187	-0.170+
	(0.137)	(0.101)
Constant	-2.340***	-1.025***
	(0.094)	(0.059)
Model 2 (AIC: 7,816)		
Bridal pregnancy	2.250***	1.215***
	(0.119)	(0.097)
Cohabitation	0.237	-0.183
	(0.186)	(0.127)
Bridal pregnancy: Cohabitation	-0.783**	-0.050
	(0.269)	(0.211)

Source: Authors' calculations using the 14th round of JNFS data.
Note: +p<0.1; *p<0.05; **p<0.01; ***p<0.001. We defined marriage timing as the date of marriage registration. The other covariates in Model 1 were included in Model 2 but are not shown.

Figure 3 presents the predicted probabilities of each pregnancy intention prior to pregnancy (intended, unintended, and not planned) depending on the four orders of entry into motherhood estimated by Model 2. Women who become pregnant after marriage are more likely to report that their first pregnancy was intended regardless of their cohabitation experience. However, women who are pregnant when they get married and cohabit premaritally are more likely to become pregnant intentionally than are women who do not cohabit (9% points higher: women who took

the order of bridal pregnancy with premarital cohabitation had a 41% predicted probability, and the order of bridal pregnancy without premarital cohabitation had a 32% predicted probability).

In addition, the results for pregnancies that were "not planned" have interesting implications. Similar to the findings for "intended" pregnancies, bridal pregnancies were negatively related to pregnancies that were "not planned" in all models, with values less than one for "intended" pregnancies, and the interaction between bridal pregnancy and cohabitation was positive in value. As Model 2 shows, women who get pregnant before marriage and who cohabit premaritally are more likely to report that they were not truly thinking about getting pregnant prior to their first pregnancy. However, Figure 3 shows that the trend of the predicted probability of "not planned" cases is similar to that of "unintended" cases. Thus, the "not planned" pattern may closely resemble the "unintended" pattern. Considering that 26% of women answered that their pregnancy intentions prior to their first pregnancies were "not planned", a greater understanding of the "not planned" cases will be critical to clarifying first birth behavior in Japan.
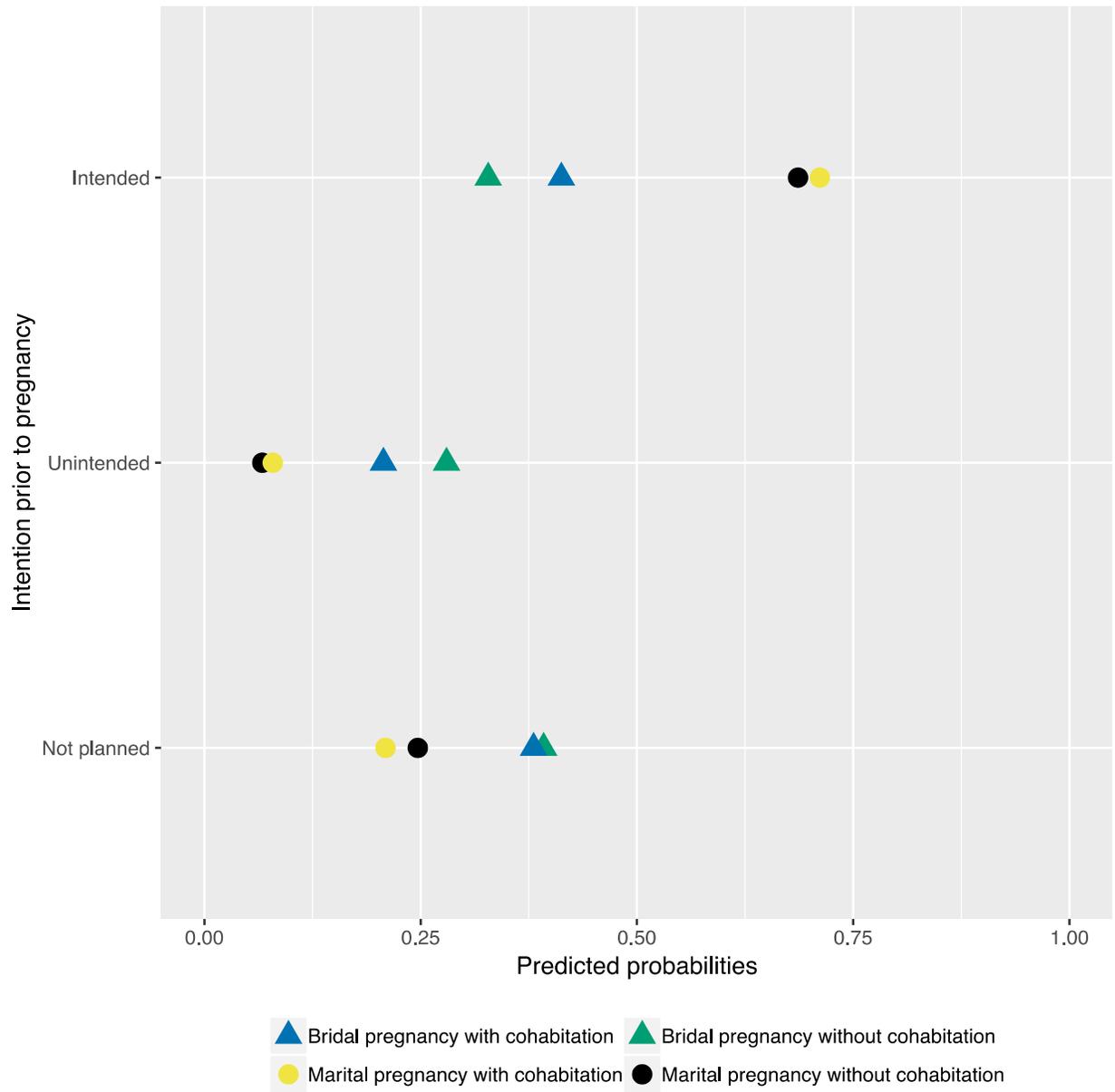
Figure 3: Predicted probabilities of each intention prior to pregnancy depend on four paths of entry into motherhood, as estimated by Model 2.

Source: Authors' calculations using the 14th round of JNFS data.

SUMMARY AND DISCUSSION

Through the use of data on currently married women from the 14th round of the Japanese National Fertility Survey conducted in 2010, our goal of this study was to investigate the relationship between bridal pregnancy and pregnancy intentions prior to pregnancy, taking into account premarital cohabitation experience. The results suggest that the order of family formation differs by premarital cohabitation status. As already examined by previous studies (Raymo et al. 2015), we confirm that births due to bridal pregnancy are more likely to be unintended births. However, a novel finding was that women who cohabited with their current husbands before marriage were more likely to report that their bridal pregnancy was intended than were women who got pregnant before marriage and did not cohabit premaritally with their current partners. This study used retrospective data, and thus, pregnancy intentions prior to pregnancy were asked about in the survey. Additionally, the analytical sample was restricted to currently married women due to data constraints; hence, studies using a prospective survey for all women are needed to validate our results.

This study has three implications. First, our results indicate that bridal pregnancy taken place by women who cohabited premaritally are less likely to be unintended. Because a bridal pregnancy is likely to occur unintentionally (Raymo et al. 2015), it has been assumed that bridal pregnancy would drive unfavorable life course outcomes, such as poor maternal well-being (Barber et al. 1999; Su 2012), fewer parental resources for the child (Barber and East 2009), high risk of divorce (Knab and Harknett 2006; Teachman 2002), and poor health (Crissey 2005). However, this study presented the heterogeneity among women who conceived before marriage with respect to their pregnancy intentions. Thus, the linkage between bridal pregnancy and

unfavorable outcomes may change in the future if premarital cohabitation keeps increasing in Japan.

Second, this study suggests the importance of fully considering the *order* of family formation rather than only looking at the *rates* of a certain event. The increase in nonmarital childbirth and cohabitation were understood as the decoupling of marriage from childbearing and childrearing (Kiernan 2001; Lesthaeghe 2010; Raley 2001; Smock and Greenland 2010; van de Kaa 2001). However, many have skeptical opinions about this issue, as more than half of women will get married up to three years after the first birth (Perelli-Harris et al. 2010, 2012; Holland 2013, 2017). In Japan, research on changes in the order of family formation has not been well examined. This is because of low nonmarital childbirth rates and the slow pace of the increase in cohabitation. Therefore, prior studies have assumed that the rise in cohabitation may change Japanese family-life trajectories. However, our study indicates that the order of family formation in Japan has changed in a way that differs from that in Western countries, i.e., changes in the order of cohabitation, *conception*, and marriage, rather than changes in the order of cohabitation, *childbirth*, and marriage. This study is able to provide this argument by relying upon the perspective focusing on the changing *order* of family formation events (Perelli-Harris et al. 2010, 2012; Holland 2013, 2017) rather than looking at *rates* of particular events (i.e., nonmarital childbirth), which was often the approach taken by studies on the second demographic transition (Lesthaeghe 2010; van de Kaa 2001).

Finally, our findings may have relevance for understanding changing patterns of family formation in countries where childbearing is strongly linked to marriage, such as East Asian and Mediterranean countries. For example, South Korea and Taiwan have a low nonmarital childbirth rate, i.e., 1.9% in South Korea and 4.0% in Taiwan (OECD 2018), and an increased proportion of

bridal pregnancies (Chang 1996; Kim 2017; Ma and Rizzi 2017; Thornton et al. 1994). In addition, both countries have witnessed a rise in cohabitation. In Taiwan, one-fourth of women aged 25-29 have ever cohabited in 2004 (Lesthaeghe 2010), and Chinese data report that the rate of ever having cohabited among the most recent marriage cohort is one-third. Most Mediterranean countries, such as Greece, Croatia, Bosnia, Montenegro, and Italy (especially southern Italy), have lower nonmarital birth rates than in other European countries (Eurostat 2018; Klusener 2015). Those countries have been often categorized as "strong family" societies (Reher 1998). An investigation of the sequence of family formation in those countries may reveal that it would have changed in a way that differed from that of other Western countries.

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