Faster Transition to the Second Child in late 20th Century Finland: A Study of Birth Intervals

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Abstract

Birth intervals are known to influence child and parental health and wellbeing, yet studies on the recent development of birth intervals in contemporary developed societies are scarce. We used individual-level representative register data from Finland (N=26,120; 54% women) to study the first interbirth interval of singleton births in cohorts born in 1955, 1960, 1965, 1970, and 1975. In women, the average interbirth interval has shortened by 7.8 months and in men by 6.2 months between the cohorts of 1955 and 1975. A higher age at first birth was associated with shorter birth intervals (in women, b = -1.68, p<.001; in men, b = -1.77, p<.001 months per year). Educational level moderated the effect of age at first on the first birth interval in both sexes. Due to rising ages at first birth in developed societies and the manifold ramifications of shorter birth intervals, this topic deserves more scholarly attention and studies from other countries.

Keywords: Interbirth interval, sibling spacing, age at first birth, fertility, education, FINNFAMILY data

Background

The species-typical spacing of births in humans is, based on data from hunter-gatherer societies, around three years (Galdikas and Wood 1990; Kramer 2005). In traditional small-scale societies the physiological effects of lactation, sometimes accompanied by cultural taboos related to post-partum sexual intercourse, usually prevent women from conceiving before the mother's previous child is from two to three years old (Hrdy 1999). However, birth intervals also vary considerably with ecological context, particularly with nutritional status and forms of subsistence (Blurton Jones 1987), and in contemporary societies through the use of modern contraceptives.

Birth intervals that are markedly shorter than the estimated species-typical spacing of circa three years are known to have adverse effects on both child and parental health and wellbeing. This has been documented for poor and developing societies with high infant mortality as well as for wealthy Western populations. Short interpregnancy intervals (less than 18 months elapsed between the delivery of the previous child and the next conception) increase the risk of perinatal problems, including preterm birth, low birth-weight and small-for-gestational-age, and serious complications during labour (Conde-Agudelo, Rosas-Bermúdez, and Kafury-Goeta 2006, 2007). While these adverse consequences of short birth intervals mainly concern mothers and children, effects that apply to fathers have also been reported. Very short birth intervals (less than 18 months between deliveries) have been found to be associated with increased mortality in both mothers and fathers (Grundy and Kravdal 2014; Read, Grundy, and Wolf 2011).

Short birth intervals have also been associated with the later development of the child in Western countries. For example, short birth intervals have been linked to later mental health problems of children, including autism, psychotic disorders, and schizophrenia (Gunnes et al. 2013; Riordan et al. 2012; Smits et al. 2004). Birth intervals may also alter the effects of having many siblings. While having a larger number of siblings has a negative overall effect on the child's cognitive development, academic performance and adulthood income, siblings with a large age difference suffer less from these adverse effects than do siblings who were born close to each other (Steelman et al. 2002). Closely spaced siblings also seem to exert an increased risk of serious injury (Nathens et al. 2000) and maltreatment on each other (Crowne et al. 2012). The causal mechanisms behind these adverse effects of short birth intervals include maternal depletion (e.g., micronutrient deficiencies), parental psychological stress and exhaustion, and increased sibling competition (Conde-Agudelo et al. 2012; Tanskanen et al. forthcoming).

The abovementioned epidemiological studies show indisputable effects of birth intervals on parental and child wellbeing even in wealthy countries, but are not informative of the overall patterns of birth intervals and their recent development. Western societies have witnessed several changes in the last decades potentially affecting birth intervals – for example the rising age at first birth, higher levels of average education, and the increased labour force participation of women, including mothers of small children (e.g. Billari, Liefbroer, and Philipov 2007). In addition, changes in family policy may influence the timing of childbearing since many parents aim to maximise eligibility for family benefits when having second or higher order births (Pettersson-Lidbom and Thoursie 2009).

In this study, we explore birth intervals in recent cohorts with individual-level data from Finland, a North-European, developed society. First, we are interested in how interbirth intervals have developed during the latter part of the 20th century in Finland. Second, we investigate whether and how the rising age at first birth has affected birth intervals across cohorts. Thirdly, because education is known to affect the timing of children (Ruokolainen and Notkola 2007), we examine whether and how parental education is related to the development of birth intervals. We study both women and men, because it is important to study also male fertility behaviour in its own right, because the effects of education on fertility are different for men and women (Bledsoe, Lerner, and Guyer 2000), and because, as discussed above, birth intervals are known to affect the parenting challenges and wellbeing of both sexes.

Data and methods

We studied the first interbirth interval of singleton births. The data were derived from the FinnFamily, a multigenerational representative dataset from the 20th century Finland. The data were compiled by Statistics Finland from the National Population Register of Finland, and consist of 60,000 randomly selected Finns from six birth cohorts (1955, 1960, 1965, 1970, 1975, and 1980; 10,000 people per cohort; 11–16% of the total cohort) and their family up to the generation of grandchildren. For the present analyses we used information on the 60,000 randomly drawn people and their live births until the end of year 2012. After excluding the youngest cohort (born in 1980) and those whose first birth was a twin birth (n = 532), and keeping only those with two children whose second child was born when the participant was younger than 37 years old, the present sample consists of 26,120 people (14,172 women and 11,948 men). The youngest included cohort of 1975 had turned 37 years old by the end of 2012. From the older cohorts altogether 2585 persons had had their second child after that age, but these persons were excluded from the analyses. This sample is thus representative of the Finnish population with two children born under the age of 37. The sample represents 6.9% of the whole population born in the years in question.

In 2012 in Finland, only 6.5% of mothers were older than 37 at the birth of their second child (OSF 2013), and this proportion can be assumed to have been lower in the preceding birth cohorts included in our study sample (Ruokolainen and Notkola 2007). The exclusion of those older than 37 at birth of second child disproportionately dropped men (66% of the dropped participants were men) and people from the younger cohorts from our sample. Approximately 5.5% of the women born in 1955 as opposed to 8.5% of the women born in 1970, and 12.5% of the men born in 1955 as opposed to 16.5% of the men born in 1970 were dropped. As these men and women were more educated, had their first child at a significantly older age, and their interbirth intervals were longer than for the sample in the main analyses, we replicated all our analyses using the three oldest cohorts, who had reached at least 47 at the end of follow-up period. These sensitivity analyses showed that the exclusion of those over 37 years old at birth of second child did not affect our main results.

The first interbirth interval (IBI) was calculated as days between the birth dates (month and year of birth) of the first and the second child, and for illustrative purposes converted into months by dividing by 30. To avoid outliers to influence the results of the regression analyses greatly, very short and very long interbirth intervals (the shortest and longest 1%) were top-coded. For women, the birth interval was coded as 12.17 months if it was shorter than that (n =129, 0.91%) and as 146.1 months if it was longer than that (n = 138, 1.03%). For men, the birth interval was coded as 12.17 months if it was shorter than that (n = 127, 1.03%) and as 138 months if it was longer than that (n=121, 1.01%). Age at first birth (AFB) was calculated as days between the birth dates of the first child and the parent (month and year of birth), and converted into years by dividing by 365. For some of the analyses, age at first birth was categorized into four quartiles. The quartiles were formed within sex and birth cohort to depict people's fertility behaviour in relation to the typical behaviour of their peers – since age at first birth was increasing throughout this period in Finland (Ruokolainen and Notkola 2007). Education is coded as the highest registered degree of the participant, regardless of the year of the degree, and classified into four categories: 1 = no degree in register, i.e., primary school (or in rare cases people with unfinished higher level education); 2 = secondary (general or vocational); 3 = lower tertiary; 4 = tertiary (university, master's degree or higher). The descriptive statistics of the sample are presented in Table 1.

Table 1. Descriptive statistics.

Cohort	1955	1960	1965	1970	1975
Women (n)	2 891	3 053	2 860	2 725	2 643
AFB (M, SD)	24.08 (3.93)	24.95 (4.10)	25.61 (4.07)	25.83 (3.99)	26.43 (4.11)
1st quartile	15.26	14.93	15.26	16.09	16.10
2nd quartile	21.02	21.76	22.68	22.93	23.35
3rd quartile	23.77	24.93	25.69	25.69	26.52
4th quartile	26.77	28.02	28.44	28.69	29.60
Education (n, %)					
1	521 (18.0)	339 (11.1)	276 (9.7)	238 (8.7)	152 (5.8)
2	1 308 (45.2)	1 385 (45.4)	1 209 (42.3)	1 044 (38.3)	975 (36.9)
3	843 (29.2)	966 (31.6)	977 (34.2)	981 (36.0)	979 (37.0)
4	219 (7.6)	363 (11.9)	398 (13.9)	462 (17.0)	537 (20.3)
IBI (M, SD)	45.89 (28.94)	42.51 (27.80)	38.85 (26.77)	38.62 (24.32)	38.12 (24.04)
Men (n)	2 652	2 502	2 374	2 160	2 260
AFB (M, SD)	26.11 (3.70)	26.85 (3.80)	27.25 (3.58)	27.42 (3.74)	27.85 (3.76)
1st quartile	16.26	16.93	15.93	15.93	16.51
2nd quartile	23.27	24.02	24.85	24.76	25.19
3rd quartile	25.98	26.93	27.27	27.52	28.19
4th quartile	28.69	29.77	29.85	30.27	30.69
Education (n, %)					
1	585 (22.1)	391 (15.6)	304 (12.8)	335 (16.4)	223 (9.9)
2	1 245 (47.0)	1 281 (51.2)	1 206 (50.8)	939 (43.5)	1 065 (47.1)
3	571 (21.5)	547 (21.9)	593 (25.0)	542 (25.1)	584 (25.8)
4	251 (9.5)	283 (11.3)	271 (11.4)	324 (15.0)	388 (17.2)
IBI (M, SD)	42.79 (26.90)	38.23 (24.59)	35.75 (22.67)	36.73 (23.47)	36.57 (22.88)

Note. Age at first birth: years and lower limits of quartiles. Education: 1 = primary, basic or missing; 2 = secondary, general or vocational; 3 = lower tertiary; 4 = tertiary (university).

The data were analysed with linear regression models using Stata13 (StataCorp. 2013). Because of the skewness of the outcome variable, we used robust standard errors (sandwich estimator) throughout all analyses. The sex of the parent had a significant effect on IBI (data not shown), and therefore all analyses were carried out separately for men and women. First, we examined how birth cohort is associated with the first interbirth interval, with cohort entered as a categorical independent variable and controlling for age at first birth. We then examined more closely the effects of age at first birth in different cohorts, and the effects of education in different quartiles of age at first birth. The model examining the effect of age at first birth in different cohorts had birth cohort, categorized age at first birth and their interaction as independent variables. The model examining the effect of age at first birth in different educational categories was performed to all cohort members combined, and had education, categorized age at first birth and their interaction, and birth cohort as independent variables.

Results

The average first interbirth intervals have shortened among both sexes between the cohorts of 1955 and 1975 (Table 1). The regression analysis showed that in women, compared to the reference category (cohort of 1955), the birth interval was significantly shorter in all other cohorts (for 1960: $b = -1.91$, $p=.007$; 1965: -4.67, $p<.001$; 1970: -4.32, $p<.001$; 1975: -3.82, $p<.001$). Age at first birth (in years) was controlled for and had a negative effect on the interbirth interval ($b = -1.68$; 95% CI -1.79, -1.57; $p<.001$). Similarly in men, compared to the reference category (cohort of 1955), the interbirth interval was significantly shorter in all other cohorts (for 1960: $b = -3.25$, $p<.001$; 1965: -5.02, $p<.001$; 1970: -3.74, $p<.001$; 1975: -3.14, $p<.001$). The effect of age at first birth per year was negative also among men ($b = -1.77$; 95% CI -1.90, -1.64; $p<.001$). In both sexes, the negative effect of all birth cohorts on the birth interval remained significant and almost unchanged also after controlling for education (data not shown).

We also examined the proportion of short interbirth intervals in women, to explore whether the amounts of risky pregnancies have risen together with the general shortening of birth intervals. For this analysis, interbirth intervals were classified as being very short if less than 18 months (possible long term health consequences for mothers), and short if less than 27 months (possible perinatal consequences for child and mother) (Conde-Agudelo et al. 2006, 2007; Grundy and Kravdal 2014; Read, Grundy, and Wolf 2011). Between the female cohorts of 1955 and 1975, the proportion of very short birth intervals has remained roughly the same, at around 10%, and the proportion of short intervals has risen from around 20% to around 30% (Figure 1). The overall proportion of risky birth intervals was approximately 40% in later cohorts, compared to 29% in the cohort of 1955.

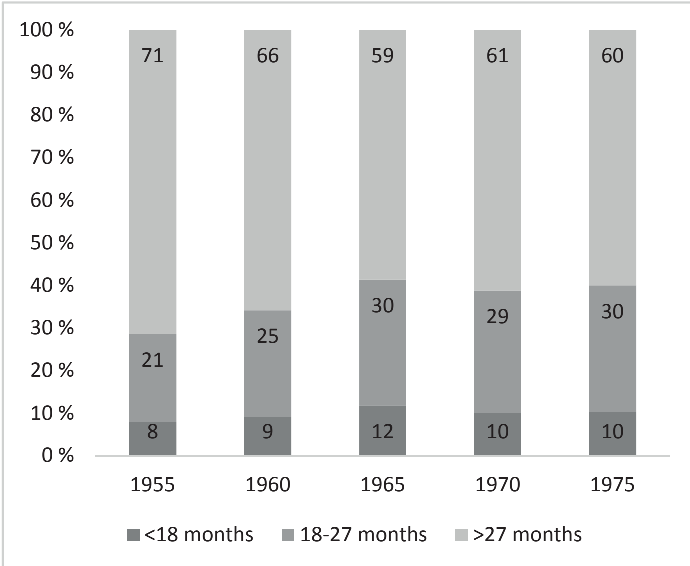

Figure 1. Proportions of very short and short interbirth intervals in women by birth cohort.

We then examined whether age at first birth affected the interbirth interval differently in different cohorts. In this analysis, 1965 was used as the reference cohort. In women, higher age at first birth was associated with shorter interbirth intervals in all cohorts (Table 2). Compared to the cohort 1965, this effect was similar in all cohorts (all p's for the interaction terms > .05), except for the 1970 cohort. For women born in 1970, higher age at first birth was also associated with a shorter interbirth interval, but the negative effect of later age at transition to parenthood (for the second quartile: b = -6.01, 95% CI -9.05, -2.98, p<.001; third quartile -4.76, CI -7.67, -1.85, p=.001; fourth quartile -11.30, CI -13.96, -8.63, p<.001) was significantly weaker than in other cohorts. In men, higher age at first birth was also associated with shorter interbirth intervals in all cohorts (Table 2). This effect was similar in all cohorts (all p's for the interaction terms > .05), except for the 1955 cohort and for the third and fourth quartile of the 1960 cohort. In these groups, the negative effect of age at first birth (for the 1955 second quartile, b = -10.92, 95% CI -14.28, -7.55, p<.001; third quartile -13.94, CI -17.08, -10.80, p<.001; fourth quartile -20.83, CI -23.76, -17.91, p<.001; for the 1960 third quartile -14.03, CI -16.95, -11.11, p<.001; and fourth quartile -17.68, CI -20.44, -14.91, p<.001) was significantly stronger than in the younger cohorts.

Table 2. Regression of first birth interval on cohort, age at first birth and their interaction.

	B	95 % CI	p	B	95 % CI	p
Cohort						
1955	4.71	.97, 8.45	.013	11.48	7.81, 15.15	.000
1960	4.52	.79, 8.24	.017	5.43	1.83, 9.04	.003
1965	ref.					
1970	-6.24	-9.89, -2.60	.001	1.45	-2.32, 5.21	.451
1975	-3.46	-7.17, .26	.068	2.15	-1.51, 5.81	.250
AFB, quartile						
1	ref.					
2	-11.67	-15.02, -8.31	.000	-5.83	-8.96, -2.71	.000
3	-15.09	-18.16, -12.03	.000	-9.65	-12.51, -6.78	.000
4	-19.29	-22.19, -16.39	.000	-12.41	-15.13, -9.70	.000
Cohort*AFB						
1955						
1	ref.					
2	4.27	-.48, 9.02	.078	-5.09	-9.68, -.49	.030
3	4.06	-.37, 8.49	.072	-4.29	-8.55, -.04	.048
4	.91	-3.21, 5.02	.665	-8.42	-12.40, -4.43	.000
1960						
1	ref.					
2	1.23	-3.45, 5.91	.607	-2.21	-6.76, 2.33	.339
3	-2.05	-6.31, 2.21	.346	-4.38	-8.48, -.29	.036
4	-2.73	-6.75, 1.28	.182	-5.26	-9.13, -1.39	.008
1965	ref.					
1970						
1	ref.					
2	5.66	1.13, 10.18	.014	-1.02	-5.63, 3.59	.665
3	10.34	6.11, 14.56	.000	.77	-3.54, 5.08	.727
4	8.00	4.06, 11.94	.000	-1.66	-5.67, 2.36	.419
1975						
1	ref.					
2	3.84	-.75, 8.44	.101	-.73	-5.24, 3.77	.750
3	3.79	-.42, 7.99	.077	-1.73	-5.86, 2.41	.413
4	3.19	-0.77, 7.15	.114	-3.02	-6.92, .89	.130
Constant	50.35	47.63, 53.07	.000	42.71	40.20, 45.22	.000

Note. Reference cohort is 1965 and reference age at first birth (AFB) is the youngest quartile. Unstandardized betas and their 95 % confidence intervals.

Finally, we performed regressions examining the associations between age at first birth and first birth interval in relation to education. The predicted marginal means from these regressions are depicted in Fig. 2, separately for men and women. In women, compared to the reference group (AFB = 1, education =1), higher education (educational category 4) was associated with a longer birth interval in the first AFB quartile (b = 8.06, 95% CI -.18, 16.30, p=.055). The interaction between education and age at first birth was statistically significant in the three upper AFB quartiles and the highest educational group: higher education was not associated with the interbirth interval in the second AFB quartile (b = -2.93, 95% CI -6.96, 1.09, p=.153), but it was associated with shorter interbirth intervals in the third and fourth AFB quartile (3rd quartile: -6.74, CI -10.77, -2.71, p=.001; 4th quartile: -3.19, CI -6.51, .12, p=.059). In men, higher education (educational category 4) was associated with a shorter interbirth interval in the first, second, and third AFB quartiles (b = -9.14, 95% CI -14.52, -3.76, p=.001). The interaction was significant between the two highest educational groups and the highest AFB quartile: higher education was not significantly associated with interbirth intervals in these groups (education = 3: 1.25, CI -.67, 3.17, p=.203; education = 4: .38, CI -1.57, 2.33, p=.702).

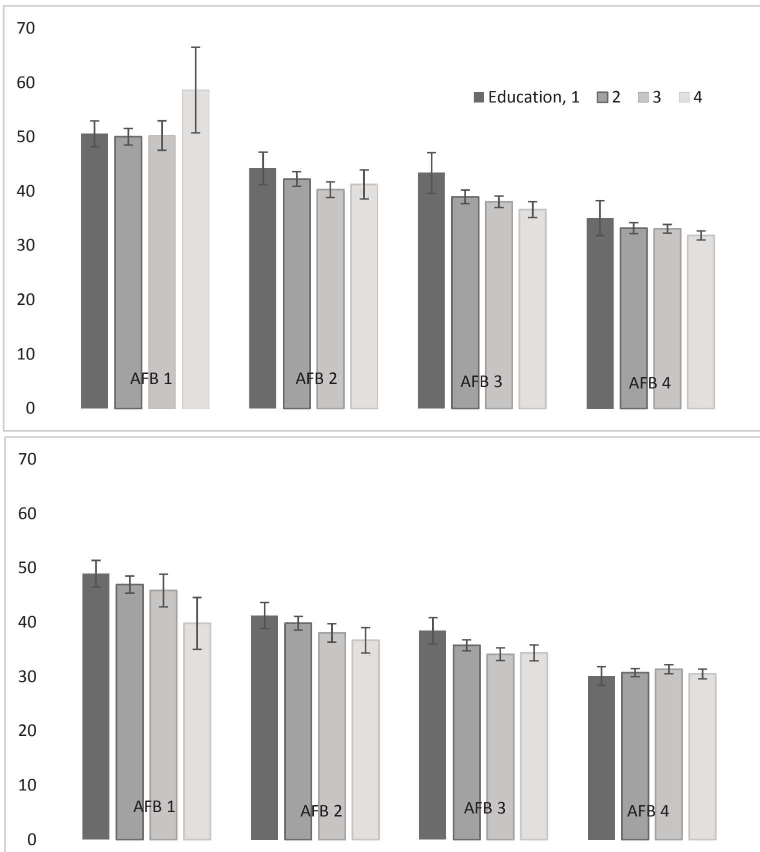

Figure 2. Predicted marginal means and 95 % CI's for interbirth interval in months by educational category and age at first birth (AFB, quartiles) for women (above) and men (below).

Summary and discussion

Given the manifold ramifications of birth intervals with potential costs to the health care system and population health more generally, there is a surprising lack of data on average interbirth intervals and their recent development in European populations. In this study, we used a representative sample of Finns with at least two children and found that the average interbirth interval has shortened by almost 8 months in women and slightly over 6 months in men between the cohorts of 1955 and 1975. The greatest reduction seems to have happened between the cohorts of 1955 and 1965, after which the birth interval between the first and the second child has remained roughly the same. In the younger cohorts, the proportion of short birth intervals (below 27 months) has stabilised around 40% in women.

Furthermore, we found that a higher age at first birth reduced the first interbirth interval and that the magnitude of this effect differed between cohorts. Among women born in 1970, a later age at first birth did not shorten the time to the second birth as much as it did in other cohorts. Among men born in 1955 and 1960, the shortening effect of later fatherhood on the first birth interval was stronger than in the younger cohorts.

Finally, we found that higher education moderated the effect of age at first birth on birth intervals. In men, higher education shortened the birth interval for those who had their first child early, but had no effect on birth intervals for those who had their first child later. In women, on the contrary, higher education lengthened the interbirth interval for those who had their first child early and shortened the interval if they had their first child later.

We used a large, representative sample with register data on births, which allowed us to estimate interbirth intervals with great certainty at an individual level. Nevertheless, the results need to be interpreted with caution. Firstly, since not all births are registered to biological fathers, it is possible that the data underestimates the numbers of children born to men. However, this is unlikely to have affected the results severely, as the proportion of children with no known biological father in Finnish registers was only around 2% in the late 20th century Finland (Kartiovaara and Säkkinen 2007). Secondly, since some pregnancies terminate prematurely, interpregnancy interval would be a better measure than interbirth interval (Conde-Agudelo et al. 2006). In theory, it is possible that a rise in levels of prematurity could lead to a decrease in average interbirth intervals. Our data did not allow us to estimate such effects, since we only had data on births. However, while prematurity has become more common in many European countries in recent years, this is not the case in Finland (Zeitlin et al. 2013). Thus, it is unlikely that rising levels of prematurity would affect our results.

Thirdly, because the youngest cohort had only turned 37 years when register data on live births was collected, we had to exclude people who had had their second child after that age from the sample. Only a minority of Finns, however, have a second child after turning 37. The results on birth intervals and the effect of age at first birth on birth intervals remained similar when replicating the analyses for the three oldest cohorts, who had reached at least 47 at the end of follow-up period. Therefore, we feel confident in our conclusions about the shortening of birth intervals and increasing amounts of epidemiologically risky intervals in the late 20th century Finland.

We have shown that the first interbirth interval seems has shortened in Finland quite clearly between the cohorts of 1955 and 1965. In a previous report from the census of Finland in 1970, for women born in 1916–1930, the birth interval between the first and second live birth was circa 39 months, and around 39% of second births happened within two years after the birth of the first child (OSF 1975; the birth intervals were reported in years, so calculated months are a crude estimate). These figures are similar to what we found for the cohorts of 1965 to 1975 in this study. The average interbirth interval in the 1955 cohort, on the contrary, was longer, almost four years in women and 3,5 years in men. This seems quite high – especially since at that time, people on average held 2.2 years to be the ideal interbirth interval (Ritamies and Visuri 1975).

It may be that particularly the cohorts born in the mid-20th century Finland faced societal challenges that interfered with the realisation of their preferred timing of children. From the 1960s onward, the dual breadwinner system rooted itself in Finland, and mothers were increasingly joining the labour forces while municipal day care systems and subsidized parental leaves were little developed (Anttonen 1999). The 1970s also witnessed a fundamental change in attitudes relating to family formation with divorce, cohabitation before marriage, and multiple sexual partners becoming more commonplace (Haavio-Mannila, Kontula and Rotkirch 2002). During the 1980s family benefits and leaves were extended and improved. Of these, the most profound change happened in 1985, when Finland introduced a law that gradually by 1990 guaranteed a place in municipal day care for all children under three, or optionally, parents who did not place their child in municipal day care were provided with a child home care allowance (Anttonen, 1999).

In Sweden, family policies have been suggested to have influenced interbirth intervals. The introduction of a regulation in 1980 in Sweden, allowing parents to maintain the level of previous maternity/paternity leave allowance if the next child was born within 24 months, shortened the average birth interval by six months and increased the amount of short birth intervals (shorter than 24 months) by 10% (Pettersson-Lidbom and Thoursie 2009). One may speculate that the changes made in Finnish family policy during the 1980s (especially the child home care allowance for parents of children under three years of age, which soon became immensely popular (Anttonen 1999)) may have shortened the average interbirth interval, towards the length that people seem to consider ideal from the point of view of their own preferences.

Part of the fall in the average birth interval is related to the rising age at first birth. The later a person starts reproducing, the closer the births tend to be – although based on this study, there is variation in the magnitude of this effect. Particularly notable is the finding that in the cohort of 1970, women did not speed up their reproduction in relation to age at first birth as much as in the other cohorts. The latter 50% of this cohort had their first child from around mid-1990s to circa 2005, at a period of economic boom after the severe economic recession of the early 1990s. It may be that some aspects of this era – possibly the well-functioning labour market – made women space their two first children somewhat further apart than at other recent periods.

The shortening effect of later transition to parenthood on birth intervals was strongest in highly educated Finnish women. In line with our results, a U.S. study found that short birth intervals were more likely to be intended among more advantaged women (e.g., highly educated) (Gemmill and Lindberg 2013). In other words, highly educated women appear to aim towards shorter intervals. This may be because the highly educated are more likely to have better paid, secure jobs, and therefore prefer not to spend long periods outside the workforce having and raising children. The highly educated are also on average more likely to be in secure, stable relationships (Lyngstad and Jalovaara 2010), which facilitates short birth intervals in women. And finally, highly educated women have higher fertility ideals than the less educated in today's Europe (Testa 2014). The highly educated may be more aware of the rapidly diminishing female fertility after the age of 35, and the risks associated with pregnancy at an old age. Since the highly educated start reproducing later, but tend to have two-three children if they become parents at all, they are somewhat compelled to shorten their birth intervals.

Between the cohorts of 1955 and 1975, the proportion of epidemiologically risky intervals (shorter than 27 months) has risen to almost 40% in Finnish women. This proportion is similar to that of the cohorts of 1916–1930, for whom family planning was not facilitated by modern medicine and contraception (OSF 1975). A comparable trend has been found in other European countries as well (Grundy and Kravdal 2014; Read et al. 2011). It is likely that the complications associated with short intervals are on the rise, too. This seems to be the case in Finland, where perinatal complications (prematurity, low birth weight and small-for-gestational-age) increased in the 1990s among women with high socioeconomic status (Gissler et al. 2003). Possible increases in pregnancy-related complications put a strain on the health care system, not to mention the personal distress of the affected families. In addition, shortening birth intervals may have longstanding effects on the children's later cognitive functioning, academic performance, and mental health (e.g., Buckles and Munnich 2012; Riordan et al. 2012; Steelman et al. 2002), parental health (e.g., Grundy and Kravdal 2014), as well as the overall emotional functioning of the family (e.g., Crowne et al. 2012). In terms of child and parental consequences, the variance in birth intervals may gain in relative importance: the average number of children in Western countries centres around two, and the benefits of longer intervals may become more evident compared to situations where the numbers of children varied more (Steelman et al. 2002).

In conclusion, our study is, to our best knowledge, the first providing representative data on the recent developments of birth intervals in a contemporary Western society. Birth interval trends deserve more studies from other countries. Future studies should also explore the effects of short intervals on infant and parental health and child development in Finland. Many other research questions remain unanswered as well. For example, there is an apparent lack of studies on the effects of birth intervals on parental mental health or relationship quality. I addition, it would be important to assess how changes in family policies or public awareness could reduce the risk of developmentally less advantageous birth intervals. We hope that improved knowledge on the effects of birth spacing would help people steer their family planning towards less risk prone solutions.

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