Postponement of Childbearing and Mental Health Outcomes: Evidence from the British Birth Cohorts

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Abstract

Current literature on the link between fertility and health shows an inverted U-shape relationship between age at first birth and several physical and mental health measures. In particular, very early and very late childbearing are associated with worse outcomes, such as a higher prevalence of chronic diseases and higher risk of depression. However, the pattern of age at childbearing has changed substantially in developed countries, with a consistent postponement of parenthood since 1970s. Moreover, recent evidence suggests that psychological distress in mid-life has increased over time, and understanding its determinants is necessary. Existing studies fail to investigate how postponement of childbearing is associated with mental health outcomes in mid-life. Using data from the British Cohort Studies, we fill this gap in the literature by examining the relationship between age at childbearing and several measures of psychological distress among men and women in their mid-40s, born in 1946 [to come], 1958 and 1970.

Introduction

Current literature on the link between fertility and health shows an inverted U-shape relationship between age at first birth and several physical and mental health measures. In particular, very early and very late childbearing are associated with worse outcomes, such as a higher prevalence of chronic diseases, worse self-rated health, and higher risk of depression. However, the pattern of age at childbearing has changed substantially over time in developed countries, with a consistent postponement of parenthood since the 1970s. In the UK, the average age at first birth has increased from 24.2 to 28.7 among women and from 29.5 to 33.3 among men between 1975 and 2015. Moreover, recent evidence suggests that psychological distress in mid-life has increased over time, and understanding its determinants is necessary. Data from different studies based on both American and British samples of men and women born between 1920s and 1950s show that early childbearing is associated with greater levels of depression (Henretta et al. 2008; Spence 2008; Read and Grundy 2011). This association is shown to be mediated partially by socioeconomic status, physical health, and health behavior. Evidence on late motherhood and fatherhood (older than 35) has reported mixed results, with some studies revealing greater odds of mental health issues and others showing a protective effect of late parenthood against psychological distress (Spence 2008; Read and Grundy 2011).

Existing studies fail to investigate how postponement of childbearing and the changes in the distribution of age at first birth over time are associated with mental health outcomes in mid-life. Using data from the British Cohort Studies (1946 Birth Cohort [to come], 1958 National Study Development Study, 1970 British Cohort Study), the aim of this work is to fill this gap in the literature by examining the relationship between age at childbearing and several measures of psychological distress among men and women in their mid-40s, born in 1946 [to come], 1958 and 1970, respectively. The mechanisms that link age at first birth and mental health seem to suggest that people who postpone their parenthood tend to have later and better first marriages, higher educational level, lower risk of economic strain, and better physical health. However, the implications for mental health of the general shift in the distribution of age at first birth (to later ages) are not clear and need to be addressed.

Previous Research

Recent research increasingly suggests that aspects of fertility have a significant impact on our life outcomes, and specifically, state of mental health. One popular line of discourse in the field has been whether parents are happier than non-parents. This has thrown up mixed conclusions with some

studies suggesting that parents, especially fathers, report higher levels of meaning to life, positive emotions and happiness than non-parents (Holton et al. 2010; Nelson et al. 2013), while others report little to no negative parenting effect (Blanchflower and Oswald 2004) and some suggest net negative effect of parent such as a higher prevalence of depression (Evenson and Simon 2005). More generally, the current literature on the link between fertility and health shows an inverted U-shape relationship between age at first birth and several physical and mental health measures. In particular, very early and very late childbearing are associated with worse outcomes, such as a higher prevalence of chronic diseases, worse self-rated health, and higher risk of depression. The age of 23 was described as the pivotal age for first birth (Mirowsky and Ross 2002), where those who had their first child after age 23 reported feeling depressed less often than those who became parents before 23 and than non-parents. Furthermore, 30 years old was described as the optimal age for women to give birth in the same study. In a study conducted in the US on 540 siblings and twins, findings indicated that age at first birth has a positive, linear effect on men's health (Pudrovska and Carr 2009). Other studies focusing on teen pregnancies suggest that teenage mothers tend to have an elevated medium-term depression whereas older mothers tend to be less depressed (Liao 2003). Furthermore, a longitudinal survey of data spanning over 20 years (1982 to 2002, National Longitudinal Study of Youth) indicates that although parents of all ages tend to decrease their drinking after childbirth, younger parents increase binge drinking as they age from early to later adulthood, while others decrease drinking (Wolfe 2009). Spence (2008) supports this idea that childbearing at older ages is more important for late psychological than physical well-being. Data from women born in the 1920s and 1930s in the United States show that early childbearing is associated with greater levels of depressive symptomatology (though this association is mediated by socioeconomic status and physical health), while late childbearing is associated with more depressive symptoms net of early life and current socioeconomic status, child proximity and support, and physical health (Spence 2008). Data from married couples born between 1923 and 1953 in the UK (from the British Household Panel Survey) indicated that early fatherhood increases the odds of mental health problems, and that late motherhood (35 or more) is protective against psychological distress (Read and Grundy 2011). A comparison of women from the British 1946 birth cohort study and the U.S. Health and Retirement Study birth cohort of 1931–1941 revealed that in both samples a first birth before 21 years, compared to a later first birth, is associated with poorer mental health, although the association becomes non-significant after controlling for educational attainment in the US sample (Henretta et al. 2008). This means it is crucial to understand the effects of the delaying age at first birth of parents on their mental health.

However, the age at childbearing has been postponed considerably over time in developed countries since the 1970s. If we consider the UK as an example, the average age at first birth has increased by 4.5 years (from 24.2 to 28.7) among women and by almost 4 years (from 29.5 to 33.3) among men from the mid 1970s to now. Not only there has been a shift in the distribution of age at first birth, but recent literature shows that psychological distress in mid-life has increased over time. Thus far, there have been very few studies based on longitudinal data comparing different cohorts and taking into account the long-term consequences of age at first birth. Immediate to short term effects after childbirth considering age at first birth have been frequently studied (Deal and Holt 1998; McMahon et al. 2011), reporting that older mothers report fewer depressive symptoms than teenage mothers. Studies that attempt to report the long-term effect of age at first birth (Spence 2008; Grundy and Read 2015) both within a single country and using a cross-national comparative perspective (Henretta et al. 2008) generally support the inverted U-shaped relationship between age at first and mental health in mid-life.

Existing studies fail to investigate how postponement of childbearing and the changes in the distribution of age at first birth over time are associated with mental health outcomes in mid-life. Studies which have attempted such have been on a smaller scale both via time scale (Liao 2003) and geographically (Aitken et al. 2016). The latter study looked at the mental health consequences for 4,262 mothers over 40 in Australia and the results suggest that the poorer mental health in mid-life found among teenage mothers has deteriorated in more recent cohorts. Using data from the British Cohort Studies (1946 Birth Cohort, 1958 National Study Development Study, 1970 British Cohort Study), this work will investigate the association between age at childbearing and measures of psychological distress among men and women in their mid-40s, comparing three different cohorts born in 1946, 1958 and 1970, respectively.

In particular, we will aim to answer the following research questions: Is age at first birth associated with mental health in midlife? How does the association vary across different generations? And finally, is this association modified by socioeconomic status? The past literature on age at first birth and mental health suggests that those who with a higher age at first birth on average marry later and have better first marriages, higher educational level, lower risk of economic strain, and better physical health. Many studies suggest that it could be these factors improving with age that contribute to older first-time parents having better mental health (Mirowsky and Ross 2002), although there are others who question this line of causation. Carlson (2011) suggests that other factors, such as deviating from their expected age at first birth, result in higher levels of depressive symptoms for women in

midlife who transition into parenthood both earlier and later than expected. However, the implications for mental health of the general shift in the distribution of age at first birth (to later ages) are not clear and need to be addressed. Given the existing research on the topic, we do hypothesize that there is an association between age at first birth and mental health in midlife, and that this association is stronger in younger birth cohorts partly because of the postponement of fertility - and so a more adverse effect of having the first child at an early age. Moreover, we do expect a higher socioeconomic status to be protective, especially in younger cohorts. It is acknowledged that the comparison of cohorts brings problems, such as the difficulties in comparing cohorts' deviation to the changing world and therefore changing circumstances (Henretta et al. 2008).

Data and Methods

Data

In this work we use data from the 1958 National Child Development Study (NCDS) and the 1970 British Cohort Study (BCS70). The NCDS started in 1958 and follows the life of more than 17,000 infants born in England, Scotland and Wales in a single week in March 1958. The data include information on several topics, such as childhood and family background, schooling, employment, physical and mental health, fertility and partnership histories. Other than the baseline survey in 1958, other additional sweeps have been collected when respondents were aged 7, 11, 16, 23, 33, 42, 44, 46, 50, and 55. The BCS70 started in 1970 and follows around 17,000 people born in England, Scotland and Wales in a single week of 1970. Since the birth survey in 1970 there have been nine 'sweeps' of all cohort members, at ages 5, 10, 16, 26, 30, 34, 38, 42, 46. For our data analysis, we use data on psychological distress at age 42 (our main dependent variable) and we combine information collected in several sweeps for both NCDS and BCS70 to build the fertility history and derive age at first birth. We also use information collected in childhood on early life health, socioeconomic conditions and cognitive ability.

A complete case sample including respondents who provided information on fertility histories, mental health, and all background variables, would include only 2,471 respondents. Analyses using this sample would be subject to various selection biases due to the non-randomness of attrition. Hence, we implemented a multiple imputation analysis (with chained equations and 50 imputed datasets) and maintained a sample of 12,369 respondents for the NCDS, and of 12,498 for BCS70.

Methods

Measure of Psychological Distress

To analyse the association between age at first birth and mental health and how it changes over time, we selected a specific mental health indicator measured by self-report at age 42 in both cohorts. The indicator uses the nine-item version of the Malaise Inventory (Rutter et al. 1970; Rodgers et al. 1999). The items included ask the respondents whether they 'feel tired most of the time', 'often feel miserable and depressed', 'often get worried about things', 'often get easily upset or irritated', 'often get into a violent rage', 'often suddenly become scared for no reason', are 'constantly keyed up and jittery', feel that 'every little thing get on their nerves', and 'their heart often race like mad'. In the analysis we used both the 'continuous' version of this malaise score (ranging from 0 to 9), and a dichotomized version of the score, equal to 1 if the malaise score was higher than 3 and 0 otherwise.

Age at First Birth

Fertility history was built using data from multiple sweeps for both NCDS and BCS70. This information was used to compute the number of children and the age at first birth. Age at first birth was categorized into bands which are different for men and women, based on results from previous studies (Grundy and Read 2015; Hobcraft 2008; Read, Grundy, and Wolf 2011) and on the distribution in our sample: before age 20, between 20 and 24, between 25 and 29, between 30 and 34, and more than 35 for women; less than 23, between 23 and 27, between 28 and 32, between 33 and 38, and more than 39 for men.

Control Variables

Mental health and age at first birth are influenced by several confounders that we need to take into account when studying the association between the two. Specifically, we consider childhood health and socioeconomic background[1], that can influence both mental health and fertility trajectories. The age at which these variables are measured might be slightly different for NCDS and BCS70, but we used the closest ages available in the datasets. We consider social class at birth, based on father's occupation: 'skilled manual', 'partly skilled', 'unskilled', 'professional', 'managerial', 'skilled non-manual'), parental years of education (either mother's or father's – whichever was higher if both available), mother's marital status at birth, and if the respondents' mother had stayed in school beyond

[1] Most of the early life conditions and childhood health questions were asked of study members' parents.

the minimum leaving age. We also consider living conditions in childhood, specifically: financial hardship during the past year (age 11 for NCDS, age 16 for BCS70); overcrowding in the household (more than 1.5 persons per room) and housing amenities (lacking access to a bathroom, and/or an indoor WC, and/or cooking facilities, and/or hot water, vs. having access to all) (age 11 for NCDS, age 5 for BCS70). These measures were all based on reports from respondents' parents. As for childhood health, we included birth weight; whether or not the mother smoked during pregnancy; mother's height; mother's age at birth; gestational age in weeks; whether or not the mother was breastfeeding for more than one month; whether or not the child was out of school for a month or more due to health problems (age 11 for NCDS, age 10 for BCS70); number of hospital admissions before age 10/11 (age 11 for NCDS, age 10 for BCS70); episodes of enuresis at age 5/7 (age 7 for NCDS, age 5 for BCS70) and age 10/11 (age 11 for NCDS, age 10 for BCS70), and poor physical coordination at age 10/11 (age 11 for NCDS, age 10 for BCS70). We include BMI at age 10/11 and age 16. We also included the *Rutter Behaviour Scales* to measure 'internalising' and 'externalising' completed by the mother at age 5/7 and 10/11[2]. We include a variable indicating parental divorce before age 11/16 (age 11 for NCDS, age 16 for BCS70), one on need for special education at age 10/11, and parents' interest in the respondent's education at age 10/11 (interested vs. not interested). In order to take into account risky health behaviors during adolescence, we consider whether the respondent was smoking at age 16. Moreover, we include a measure of cognitive ability at age 10/11[3]. Finally, we include cohort members' ethnicity, level of education at age 23/26 (age 23 for NCDS, age 26 for BCS70), number of partnerships – both marriages and cohabitations – by age 42 (none, one, or more than one), if ever unemployed by age 42, and age at interview.

Analytic Strategy

All the analyses are reported separately by gender, given that pregnancy and childbearing are specific to women. We first report descriptive statistics for the variables used in the analysis. These are based

[2] We include the z-scores for psychological distress, built using an internalizing score from summing 5 items (worried, solitary, miserable, fearful, and fussy) and an externalizing score from summing 9 items (destructive, fights, not liked, irritable, disobedient, lies, steals, bullies, and resentful/aggressive) (Winning et al. 2015).

[3] The cognitive ability was assessed by the General Ability Test (Douglas, 1964) in NCDS (age 11), comprising tests of both verbal and non-verbal skills. Scores from this test correlate strongly with IQ-type test scores (r=0.93), hence providing a good proxy for IQ scores (Douglas, 1964). BCS70 used a modified version of the British Ability Scales (Elliott, Murray, & Pearson, 1978) comprising four sub-scales: word definitions and word similarities were used to measure verbal ability, and recall of digits and matrices was used to measure non-verbal ability. For both cohorts, we conducted a principal components analysis (PCA) for each of the verbal and nonverbal sub-tests, in order to attain a general cognitive ability factor (g). Following the protocol of previous studies, we saved scores from the first unrotated factor for each valid case (Schoon, 2010). The scores were standardised to a mean of 0 and a SD of 1.

on the specific sample available at the sweep in which the variable was collected, in order to maximize representativeness. As already mentioned, we implemented Multiple Imputation with chained equations with 50 imputed datasets using all variables in the substantive model. We then fitted multivariable logistic regression models using the dichotomous version of psychological distress as our dependent variable only for cases with non-missing malaise score, controlling for all the variables mentioned above as suggested in the literature (Von Hippel 2007).

Results

Descriptive Statistics

Table 1 reports the descriptive statistics for psychological distress and fertility characteristics of the respondents. The malaise score is on average 0.4 higher and the proportion of those who report a score higher than 3 is 5.3% higher for the cohort born in 1970 compared to 1958. The proportion of those who ever had a child is 79% for NCDS and 67.6% in BCS70, and the number of children is also higher for NCDS (1.73 vs 1.37). As expected given the postponement of fertility, age at first birth is higher for the younger cohort (27.8 in BCS 70, and 26.4 in NCDS) and the most prevalent age category for age at first birth is 23-27 (Men)/20-24 (Women) for those born in 1958 and 28-32 (Men)/25-29 (Women) for those born in 1970.

Table 1. Psychological Distress and Fertility - Descriptive Statistics

	1958			1970		
	Mean or %	**SD**	**N**	**Mean or %**	**SD**	**N**
Psychological Distress						
Malaise Score (0-1)	1.5	1.79	*10,900*	1.9	2.00	*8,532*
% Malaise Score > 3	13.1		*10,900*	18.4		*8,532*
Fertility						
% Ever had a child - Age 42	79.0		*12,369*	67.7		*12,498*
Number of Children - Age 42	1.73	1.25	*12,369*	1.37	1.21	*12,498*
Number of Children - Distribution (%)						
0	21.0			32.3		
1	18.6			19.9		
2	37.1			32.1		
3	16.5			11.5		
4+	6.9			4.1		
Age at First Birth	26.4	5.59	*9,808*	27.8	5.74	*8,456*
Age at First Birth - Distribution (%)						
<23(M) / <20(W)	19.5			14.1		
23-27 (M) / 20-24 (W)	33.9			27.8		
28-32 (M) / 25-29 (W)	27.3			30.2		
33-38 (M) / 30-34 (W)	14.7			21.1		
39+ (M) / 35+ (W)	4.6			6.8		

Table 2 reports the descriptive statistics for the control variables we included in the analysis.

Table 2. Control Variables - Descriptive Statistics

	1958			1970		
	Mean or %	**SD**	**N**	**Mean or %**	**SD**	**N**
Early Life Socioeconomic Background						
Social Class at Birth - % Manual	68.7		*12,736*	68.2		*15,685*
% in Financial Hardship	11.3		*12,226*	15.7		*8,607*
% Overcrowding	12.1		*12,618*	3.6		*12,262*
Housing: % NO Access to 1+ (Bathroom; Indoor WC; Cooking Facilities; Hot water)	11.2		*12,469*	3.9		*12,047*
% with Divorced Parents	6.3		*14,005*	15.8		*13,332*
% Mother in School after Minimum Age	24.2		*14,541*	15.1		*11,885*
Parents' Years of Education	11.3	1.79	*10,609*	10.9	1.68	*16,077*
% Parents interested in R Education	76.9		*12,832*	91.1		*10,539*
Early Life Health						
Birth Weight (ounces)	118.0	19.9	*14,535*	116.5	18.6	*15,791*
% Mother smoking when pregnant	33.1		*14,590*	45.8		*15,725*
% Mother breastfeeding for more than 1 month	42.9		*12,694*	17.7		*14,102*
Mother's height (cm)	161.0	6.4	*14,018*	160.9	6.5	*15,047*
Mother's age at birth	27.5	5.7	*14,578*	25.9	5.5	*15,102*
Gestational age (weeks)	40.1	1.7	*12,520*	40.0	1.8	*14,028*
% Mother married at birth of R	96.1		*14,581*	92.6		*15,177*
% Out of school for 1+ months	5.2		*13,870*	0.63		*11,266*
# times hospitalized	0.65	0.92	*12,646*	0.28	0.64	*12,548*
% with Enuresis - Age 5/7	12.6		*13,119*	27.3		*12,363*
% with Enuresis - Age 10/11	6.1		*12,614*	11.1		*12,479*
Physical Coordination Problems	15.7		*12,490*	13.6		*12,219*
Cognitive Ability (Standardized)	-0.001	0.99	*12,327*	-0.007	1.00	10,771
Rutter Scale Internalization - Age 5/7	0.002	1.27	12,913	0.000	1.12	12,253
Rutter Scale Internalization - Age 10/11	0.000	1.36	12,202	-0.001	1.53	12,450
Rutter Scale Externalization - Age 5/7	-0.003	1.06	12,913	0.000	1.16	12,253
Rutter Scale Externalization - Age 10/11	-0.002	1.11	12,202	-0.003	1.38	12,450
BMI Age 10/11	17.5	2.60	10,554	16.9	2.10	10,600
BMI Age 16	20.6	2.90	9,138	21.1	3.06	6,897
% Smoking - Age 16	35.7		10,995	26.1		5,769
% need Special Education Treatment	3.1		11,675	2.6		12,603
Education Level - Age 23/26						
% Low	28.0		10,288	23.5		8,052
% Medium	53.2		10,288	56.3		8,052
% High	18.8		10,288	20.2		8,052
Sociodemographic Characteristics						
Age at Interview - Age 42	41.9	0.18	8,781	42.4	0.23	9,791
% Female	49.0		15,545	48.8		17,153
Ethnicity - % White	96.9		14,706	95.2		14,744
# Partnerships - Age 42	1.70	1.31	13,843	1.03	0.98	17,512
% Ever Unemployed before Age 42	26.7		15,545	26.1		12,954

When looking at early life socioeconomic background we can see that financial hardship has increased slightly and both overcrowding and lack of access to an indoor bathroom, cooking facilities and hot water has almost disappeared for the younger birth cohort. Parental divorce has increased over time, with 15.8% of the BCS70 respondents reporting divorced parents. Early life health shows that smoking prevalence among mothers was lower in the NCDS cohort and breastfeeding was much more common (42.9% vs 17.7%). The prevalence of smoking at age 16 decreased among respondents in the younger cohort (26.1% vs 35.7%), in line with the general decline in smoking rates. Also, educational attainment has improved slightly for the younger cohort.

Age at First Birth and Psychological Distress

As we can observe in Figure 1, the distribution of age at first birth has shifted towards later age among those born in 1970 compared to the 1958 birth cohort, and the shift has occurred among both men and women in the sample. The same trend can be found when we look at the malaise score. Among both men and women, the distribution reported in Figure 2 shows an increase in the average malaise score reported by those born in 1970.

Figure 1. Age at First Birth: NCDS and BCS70

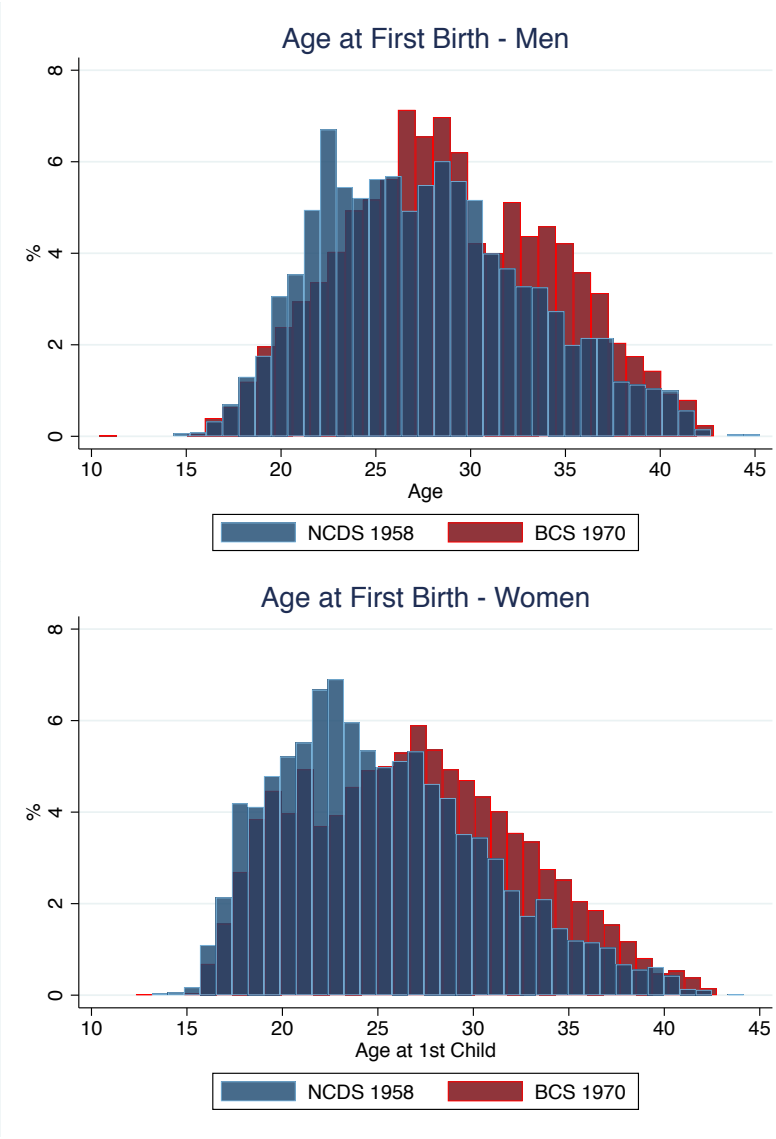
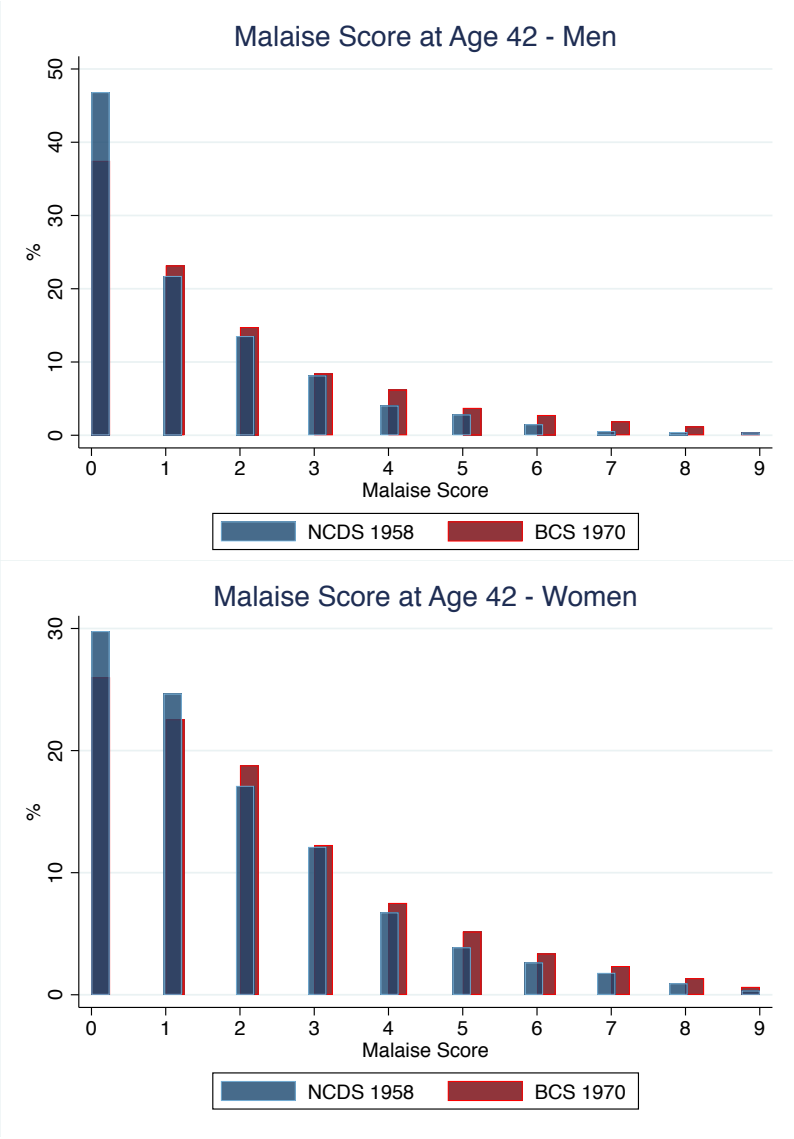
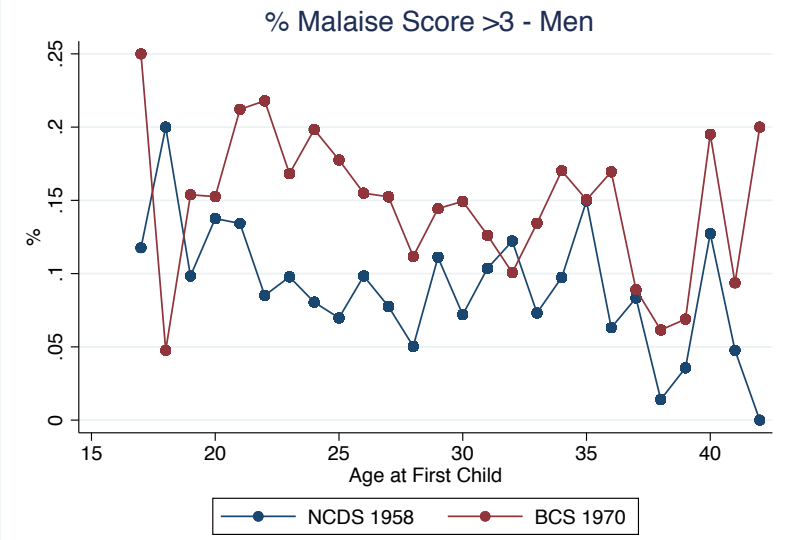


Figure 2. Malaise Score (0-9): NCDS and BCS70



The next logical step is to look at the association between age at childbearing and the malaise score across both birth cohorts. The simple bivariate relationship between age at first birth and the proportion of those who report a malaise score higher than 3 is reported in Figure 3. What we can see is that on average the proportion is higher among the respondents in the younger birth cohort (especially among men), but this difference gets weaker as age at first birth increases. In Figure 4, we report the predicted proportion of those with a malaise score higher than 3, based on the aforementioned categories of age at first birth. Among men, the prevalence of psychological distress is lower than among women, but for both sexes the prevalence is higher in the 1970 birth cohort.

Figure 3. Age at First Birth and % with Malaise Score > 3: NCDS and BCS70



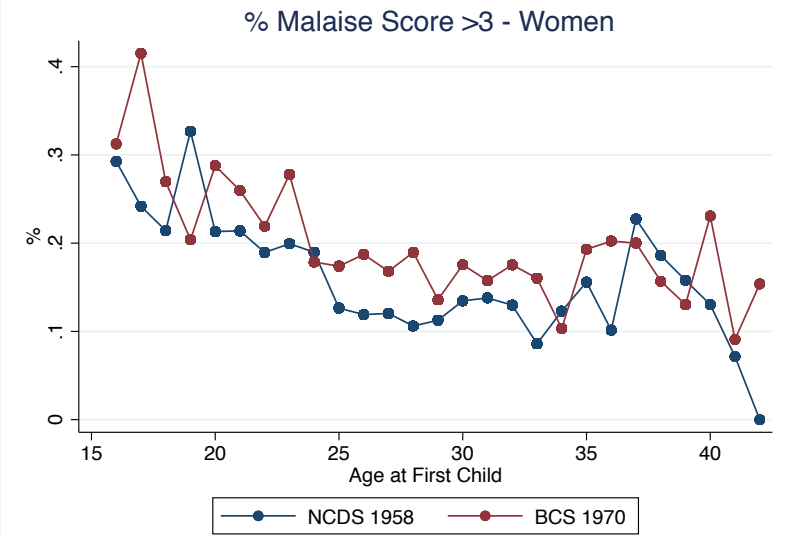
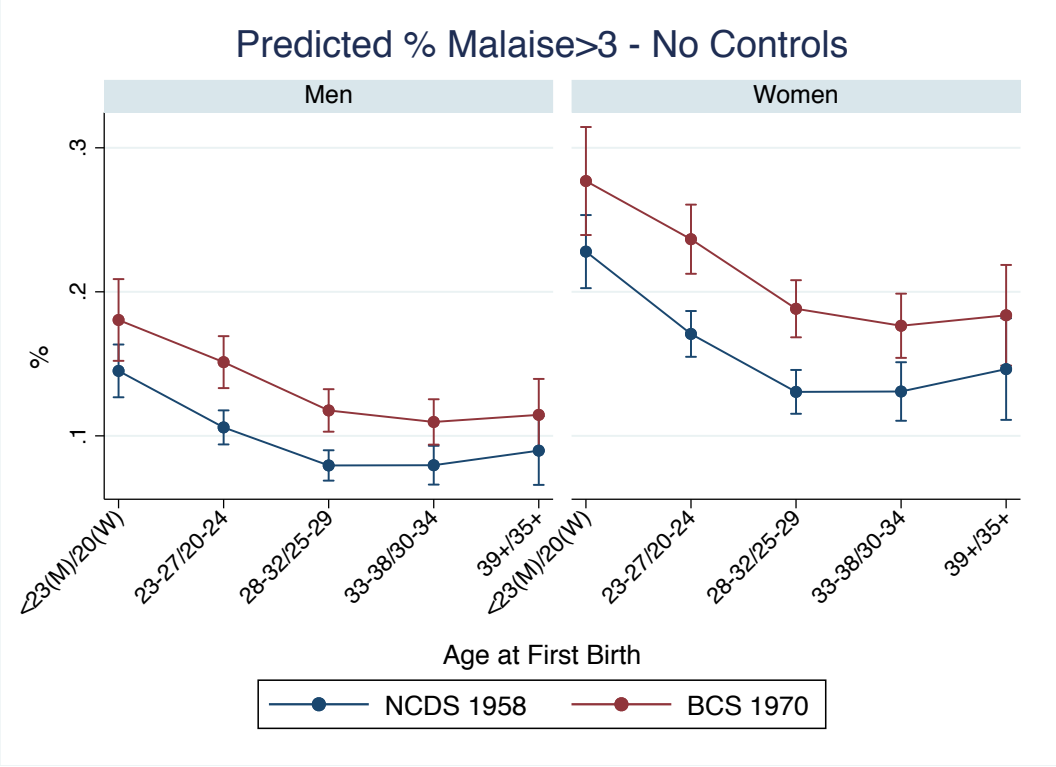


Figure 4. Predictive % with Malaise Score > 3: NCDS and BCS70



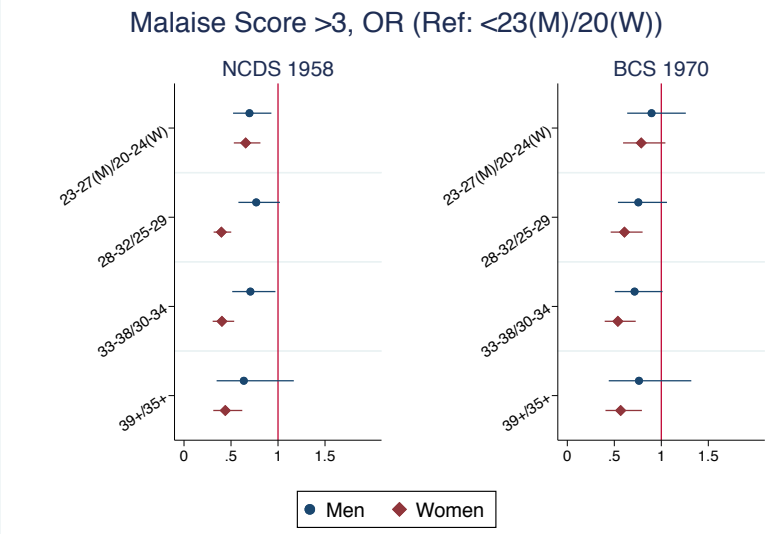
The difference across cohorts is not statistically significant for the youngest and the oldest age categories, i.e. before age 20 and after age 35 for women, and before age 23 and after age 39 for men.

The graphs and the findings reported above do not take into account any of the confounders mentioned in the methods section. However, both age at first birth and mid-life mental health - and their association - can be influenced by several factors, such as early life health, family background and socioeconomic conditions. Hence, next we will perform some multivariable logistic regression analyses to understand how the confounders affect the relationship between age at childbearing and mental health.

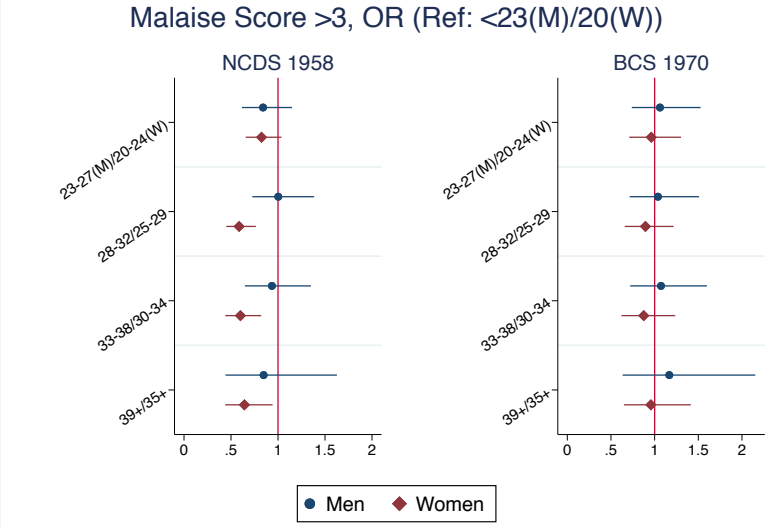
Multivariable Regression Analysis

After performing the multiple imputation analysis with chained equations and 50 imputed datasets, we ran some logistic regression models with and without confounders. Figure 5 reports the results of the models stratified by cohort. The top part of the figure shows the results without including any control variables. We can see how higher ages at first birth are associated with lower odds of psychological distress among women for both cohorts, while there is barely any association among men.

Figure 5. Multivariable Logistic Regressions excluding (top) and including (bottom) confounders, by cohort



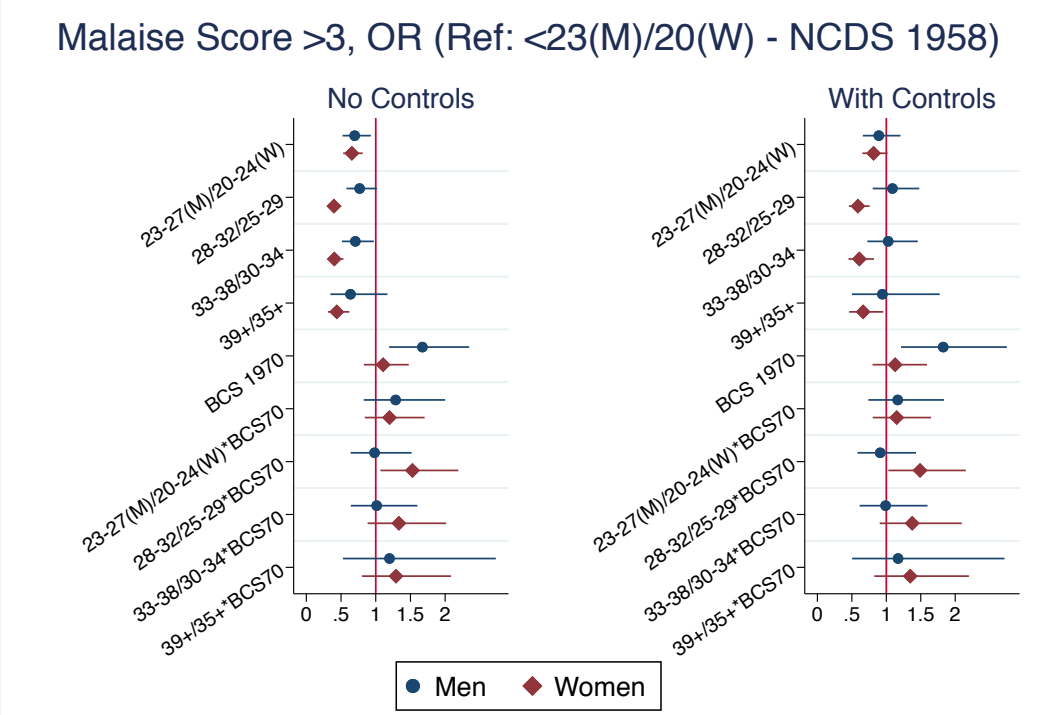
Note: Multiple Imputation Analysis - No Controls



Note: Multiple Imputation Analysis - With Controls

When we include the early life health, family background and socio-demographic control variables, the association between age at first child and malaise becomes non-significant for both men and women born in 1970. Even after taking confounders into account, there is a significant association between age at first birth and psychological distress among women born in 1958, with those having the first child after age 25 reporting lower levels of malaise. As an additional analysis we performed the same regression models but pooling the two cohorts together and including an interaction term between age at first birth and birth cohort. Results are reported in Figure 6.

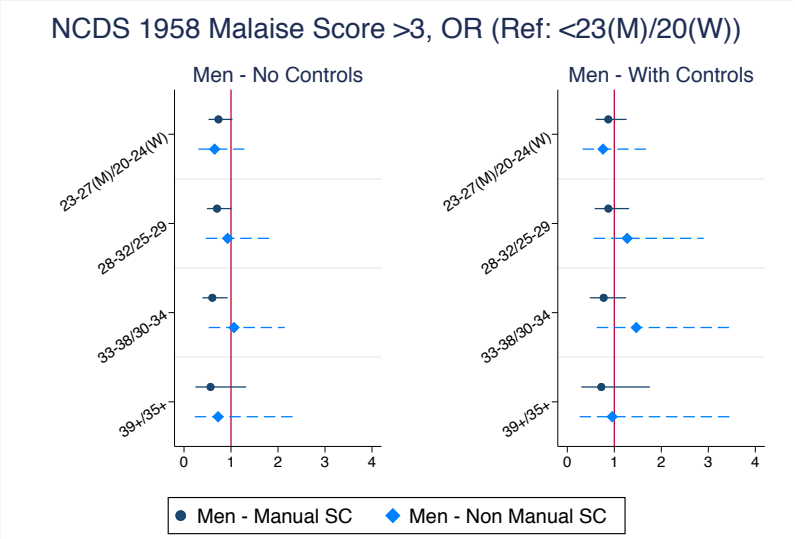
Figure 6. Pooled Multivariable Logistic Regressions



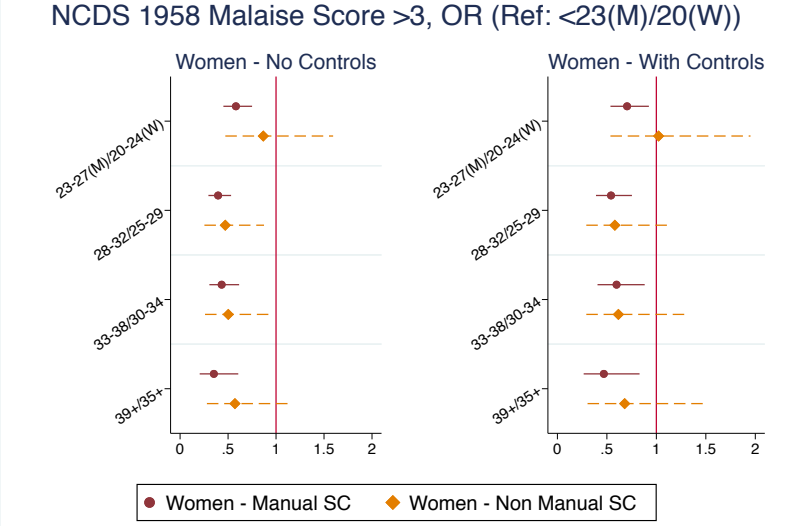
Note: Multiple Imputation Analysis - Pooled

Finally, we replicate the analysis presented in Figure 5 but stratifying the models by parental social class at birth (manual vs non manual). Figure 7 reports the results for the 1958 birth cohort. When looking at the regression models that include the confounders, we can observe how there is no significant association between age at first birth and the malaise score among men from both manual and non-manual parental social class. However, among women born in 1958, those from a manual parental social class show a negative association between age at first birth and psychological distress, with higher ages associated with lower odds of a malaise score greater than 3, while this is not true for those from a non-manual parental social class. This result seems to suggest that a higher social class is protective against the negative effects of very early ages at first birth, at least among women from the 1958 birth cohort. Results from the 1970 birth cohort, reported in Figure 8, do not show any significant association between age at first child and malaise score once we take into account the confounders, and no difference is found across different social classes.

Figure 7. Multivariable Logistic Regressions, NCDS by Social Class (manual vs non-manual)

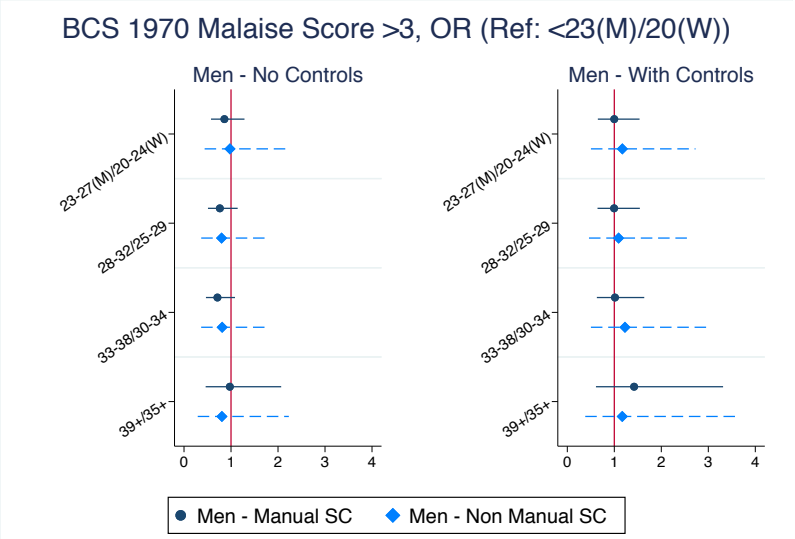


Note: Multiple Imputation Analysis - NCDS 1958 - Manual vs Non Manual Social Class

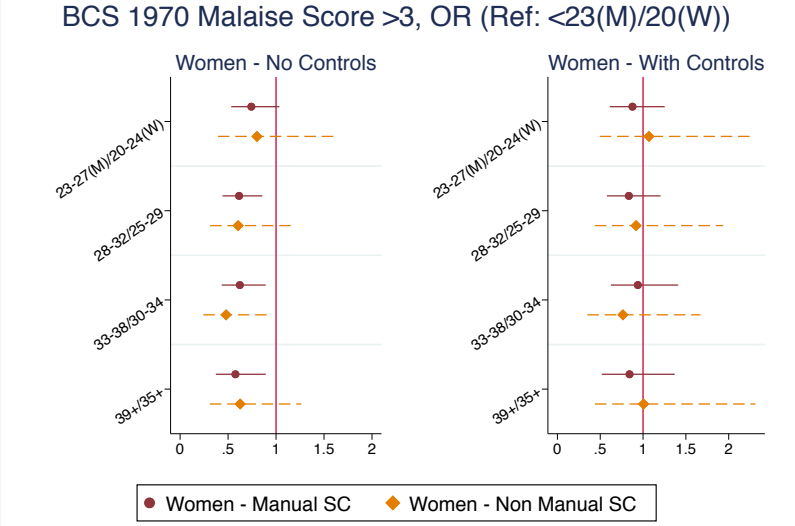


Note: Multiple Imputation Analysis - NCDS 1958 - Manual vs Non Manual Social Class

Figure 8. Multivariable Logistic Regressions, BCS70 by Social Class (manual vs non-manual)



Note: Multiple Imputation Analysis - BCS 1970 - Manual vs Non Manual Social Class



Note: Multiple Imputation Analysis - BCS 1970 - Manual vs Non Manual Social Class

Discussion

TBC

- Age at first birth associated with mental health in midlife only in women born in 1958;
- Despite the postponement of childbearing in BCS70 age at first birth was not associated with midlife mental health, after taking into account the confounders;
- Partial support for the "diverging destinies" hypothesis (i.e. higher social class being protective only for women born in 1958);
- Cohort differences (probably) not due to fertility selection.

Nest Steps:

- Expand analysis to the 1946 British birth cohort;
- Extend outcome range (age 50 in 1958 NCDS and age 69 at 1946 NSHD)
- Further investigate the underlying causes of cohort differences (confounding structure and age at first birth selection);
- Causal inference (E-value & Negative controls).

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