

Fertility from Fifteen to Fifty: How Ages at the Start and the End of Reproduction Affect Adult Sex- and Cause-Specific Mortality in the 19th and 20th Centuries

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Abstract

There is growing awareness that fertility affects rates of aging, adult survival prospects, and the likelihood of reaching exceptionally old ages. Much of this work, including our own, has focused on women and their ages at last birth, a proposed biodemographic marker for rates of aging. This literature has given far less attention to (1) men (2) the risk of specific causes of death (3) the role of early initiation of fertility and (4) how these forces may change over historical time. We use the Utah Population Database to examine how ages at first birth, ages at last birth, and parity affect cause-specific mortality after age 50 for mortality events from 1904-present and for fertility events from 1870. We find strong effects of both late age (generally protective) at last birth and early first birth (generally a risk), more for women than men, with controls for SES.

INTRODUCTION

Nearly 20 years ago, Westendorp and Kirkwood (Westendorp & Kirkwood, 1998) offered evidence for the disposable soma theory (Kirkwood, 1977), which posits that it is selectively advantageous to limit the maintenance of somatic cells in order to accelerate development and reproduction, with the downside effect of faster post-reproductive deterioration and death. Using data from the British aristocracy, they reported a positive association between age at first birth and longevity and a reduction in the number of progeny for women who died after age 80.

Westendorp and Kirkwood's empirical study was not the first of its kind, nor is the disposable soma theory the sole evolutionary interpretation of the empirical relationships between reproduction and senescence. The "antagonistic pleiotropy" theory – according to which deleterious mutations having a late age of onset freely accumulate if these mutations favor vigor and reproduction at younger ages – also lead to the prediction that delayed and less intense reproduction should be associated with longer lifespan (G. C. Williams, 1957). Some had also previously tested the association, either by explicitly referring to evolutionary mechanisms (Le Bourg, Thon, Légaré, Desjardins, & Charbonneau, 1993) or not (Bideau, 1986; Knodel, 1988). Westendorp and Kirkwood's peerage study revived this research area. The two most recent literature reviews on the subject (Hurt, Ronsmans, & Thomas, 2006; Le Bourg, 2007) are quite revealing in this regard and differences in findings still exist.

With respect to parity, three studies found a positive relationship between total parity and post-reproductive female survival (Müller, Chiou, Carey, & Wang, 2002; Sear, 2007; Volland & Engel, 1986), three studies found the opposite (Doblhammer & Oeppen,

2003; Gagnon, Mazan, Desjardins, & Smith, 2008; K. R. Smith, Mineau, & Bean, 2002), and four other studies showed no significant relationship (Bideau, 1986; Helle, Käär, & Jokela, 2002; Knodel, 1988; Le Bourg et al., 1993).

More recently, it has been shown that while men's survival may benefit from increased number of offspring (Chereji, Gatz, Pedersen, & Prescott, 2013; Gavrilov & Gavrilova, 2012) the evidence regarding the relationship between parity and mortality for women remains somewhat mixed. A number of studies demonstrate a U-shaped relationship between the number of children and post-menopausal all-cause mortality among women, with those having few children faring better than their nulliparous and high-parity counterparts (Dior et al., 2013; Jaffe et al., 2015; Kaptijn et al., 2015; Kuningas et al., 2011). Read and colleagues (Read, Grundy, & Wolf, 2011) found a similar relationship between parity and functional health limitations in later life. Evidence also exists for negative linear associations between parity and all-cause mortality (Chereji et al., 2013; Mitteldorf, 2010), mortality from certain female cancers, alcohol- and violence-related causes, and accidents (Grundy & Kravdal, 2010). The latter findings challenge the disposable soma theory. On the other hand, high parity was shown to be linked to faster rate of development of functional disability (Read et al., 2011) and an increase in post-menopausal mortality risk from circulatory and coronary heart disease (Dior et al., 2013). Tabatabaie and collaborators (Tabatabaie et al., 2011) too found that extreme longevity for both men and women in a population of Ashkenazi Jewish centenarians was significantly associated with low parity. Finally, some studies do not indicate the presence of significant association between total number of children and mortality from all causes (Gögele et al., 2011), as well as mortality from cancer (Dior et al., 2013), stroke and ischemic heart disease (Jacobsen, Knutsen, Oda, & Fraser, 2011).

Findings are more consistent regarding the association between reproduction timing and health. Early entry into parenthood is linked - for both men and women – with excess all-cause mortality (Grundy & Kravdal, 2010), higher risk of developing functional health limitations, and poorer self-later health in later life (Mirowsky, 2005; Read et al., 2011; K. Williams, Sassler, Addo, & Frech, 2015). Conversely, delayed fertility and later age at first birth may increase one's odds of surviving into older age (Gögele et al., 2011; Jaffe et al., 2015; Tabatabaie et al., 2011). In addition, the timing of fertility and parity may counteract each other, with increased parity potentially decreasing the effect of age at first and last birth on longevity (Dior et al., 2013; Sun et al., 2015).

Much of this work, including our own, has focused on women and their ages at last birth, a proposed biodemographic marker for rates of aging. As we have shown, there is a small (albeit growing) literature that has given far less attention to (1) men (2) a broad range of specific causes of death (3) the simultaneous assessment of the role of early initiation of fertility and (4) how these forces may change over historical time. We use the Utah Population Database (UPDB) to examine how ages at first birth, ages at last birth, and parity affect cause-specific mortality after age 50 for mortality events from 1904-present and for fertility events from 1870.

The UPDB has an important characteristic: it includes coverage of demographic history of frontier populations (and the demographic transition), which probably yield the most favorable conditions to study the relationship between fertility and longevity. In such conditions, there are very few intentional checks on reproduction, and if increased fertility reduces the chances for survival to old ages, higher post-reproductive mortality rates should be observed among highly fertile women. If late fertility can be reasonably taken as a sign of late menopause, and if late menopause occurs because of a slower rate of aging, then we

should also see increased survival chances at advanced ages among women who were older at the time of their last birth. Similarly, early age of fertility initiation will also arise during these high fertility periods.

To address these questions, we first estimate a series of proportional hazard models on the risk of female and male all-cause and cause-specific mortality after age 50, controlling for socioeconomic status. We have estimated models with random effects capturing unobserved factors shared by individuals from the same community. These frailty models showed no significant influence on the association between fertility behavior and later-life mortality and are not shown here. Since health selection during reproductive years may affect the true relationship between fertility and longevity (Doblhammer & Oeppen, 2003), we will use (but not in this version) a two-stage Heckman sample selection procedure in the second part of our analysis to correct for the possibility that women surviving to age 50 are a non-random (i.e., more robust) subsample of reproductive-age women. We have done this previously in other models of post-reproductive survival (Gagnon et al., 2009). Phenotypic correlations may indeed suppress fertility trade-offs if healthier women have both a high fecundity and a long life span (Helle et al., 2002). We have also estimated a set of formal competing risk model using the Fine and Gray method (Fine & Gray, 1999) and they are not reported here but are available.

The paper concludes with a proposal regarding the utility and meaning of fertility events and their timing as precursors and markers for aging as indicated by their general effects across a wide range of causes of death.

DATA AND METHODS

The sample of men and women was drawn from the Utah Population Database (UPDB), one of the world's most comprehensive computerized genealogies. Over 170,000 three-generation families were identified on "Family Group Sheets" from the archives at the Utah Family History Library, each with at least one member having had a vital event on the Mormon Trail or in Utah (K. R. Smith et al., 2002). The genealogy provides data on migrants to Utah and their Utah descendants for more than 1.6 million individuals born from the early 1800s to the mid-1970s. New families and their members are continually being added as the UPDB adds other sources of data, including Utah birth and death certificates. Because these records include basic demographic information on parents and their children, fertility and mortality data are extensive with coverage up to the present. We selected a sample of men and women who were born between 1860-1930 from the UPDB.

RESULTS

In Tables 1-6, we summarize the effects of age at last birth (ALB), age at first birth (AFB) and parity for women and men estimated separately. Descriptive variables and the full set of models are provided in the detailed Appendices A and B.

The models are voluminous and we summarize them here in general terms.

1. All the tables list the most common causes of death at the top and order them in descending fashion. Overall, we find that ALB, AFB, and parity generally have significant across the leading causes of death.
2. For Women, later ALB and AFB are associated with better survival; Exceptions are for breast/ovarian cancer where later ALB and AFB have adverse effects.

3. Controls for SES do not generally change the associations.
4. For increasing parity we find important adverse effects of cardiovascular disease and diabetes risk for women but generally protective effects for men.
5. Changes over time (before and after 1900 birth years) are quite complex, with patterns varying by cause of death, fertility characteristics, and gender.

DISCUSSION

We generally find that ALB, AFB, and parity are strong risk factors not only for all-cause mortality but across a range of cause-specific forms of mortality, especially those that are most common. While this pattern reflects in part the greater statistical power related to the most common forms of mortality, we suggest that our fertility measures are important biodemographic markers for rates of aging more generally since they impart effects across a range of causes that involve very different biological systems and organs. If their associations were restricted to one or two causes of death, then the mechanism underlying the effects of specific fertility behavior would be much narrower. In addition, the volume and diversity of fertility attributes and their association with the risk of specific causes of death are also found to change with historical time. This will be examined more extensively in the final version of the paper but speaks to both shifts in fertility behavior and changes in the mortality risks overall and reordering of patterns of death from infectious to chronic disease. Overall, this paper demonstrates how an examination of demographic behavior in the early adult years provide a method for making forecasts about mortality patterns decades later. As fertility rates generally drop in the contemporary case, we need tools to

help us to make better mortality forecasts and to identify persons at risk for specific diseases.

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Table 1. Association between age at last birth and cause-specific mortality risk for women

	Cox proportional hazard model not including NPSES as covariate			Cox proportional hazard model including NPSES as covariate		
	All women	Born before 1900	Born in/after 1900	All women	Born before 1900	Born in/after 1900
All cause	-	-	-	-	-	-
<i>Cause of Death</i>						
Cardiovascular	∩	∩	-	-	-	-
Cancers				-	-	
Respiratory	-	-		-	-	-
Nervous system	+		+	+		+
Diabetes and endocrine	-	-	-	-	-	-
Digestive	-	-		-	-	-
Senility/ill-defined				-		-
Breast/ovarian cancer	+		+	+	+	
Mental/psychoneurotic		+				
Genito-urinary						
External causes		∩			-	
Bones/organs of movement						
Infectious				-		
Blood/blood-forming organs		-				
Skin/subcutaneous tissues	-		-			
Congenital malformations						
Unknown	-	-	-	-	-	-

∩ means a concave association between the fertility measure and the risk of mortality.

U means a convex association between the fertility measure and the risk of mortality.

Table 2. Association between age at first birth and cause-specific mortality risk for women

	Cox proportional hazard model not including NPSES as covariate			Cox proportional hazard model including NPSES as covariate		
	All women	Born before 1900	Born in/after 1900	All women	Born before 1900	Born in/after 1900
All cause	U	U	-	-	-	-
<i>Cause of Death</i>						
Cardiovascular	-	-	-	-	-	-
Cancers	-		-	U		-
Respiratory	-	+	-	U	+	-
Nervous system	-		-	-		-
Diabetes and endocrine	U		U	U		U
Digestive	-		-	-		-
Senility/ill-defined	-		-	U	+	-
Breast/ovarian cancer				+	+	+
Mental/psychoneurotic	-		-	-		-
Genito-urinary	-	-	-	-		-
External causes		-				
Bones/organs of movement						
Infectious						
Blood/blood-forming organs	-		-	-		-
Skin/subcutaneous tissues						
Congenital malformations						
Unknown	U	U	U	U	U	U

∩ means a concave association between the fertility measure and the risk of mortality.
 U means a convex association between the fertility measure and the risk of mortality.

Table 3. Association between parity and cause-specific mortality risk for women

	Cox proportional hazard model not including NPSES as covariate			Cox proportional hazard model including NPSES as covariate		
	All women	Born before 1900	Born in/after 1900	All women	Born before 1900	Born in/after 1900
All cause	+	+		+	+	-
<i>Cause of Death</i>						
Cardiovascular	+	+	+	+		+
Cancers	-	-	-	-		-
Respiratory			-	-		-
Nervous system	-			-		-
Diabetes and endocrine	+	+	+	+	+	+
Digestive						
Senility/ill-defined						
Breast/ovarian cancer	-	-	-	-	-	-
Mental/psychoneurotic	-		-	-		-
Genito-urinary						
External causes						
Bones/organs of movement						
Infectious						
Blood/blood-forming organs	-		-	-		-
Skin/subcutaneous tissues						
Congenital malformations						
Unknown		+	-	+	+	-

∩ means a concave association between the fertility measure and the risk of mortality.

U means a convex association between the fertility measure and the risk of mortality.

Table 4. Association between age at last birth and cause-specific mortality risk for men

	Cox proportional hazard model not including NPSES as covariate			Cox proportional hazard model including NPSES as covariate		
	All men	Born before 1900	Born in/after 1900	All men	Born before 1900	Born in/after 1900
All cause	-	-	-	-	-	-
<i>Cause of Death</i>						
Cardiovascular		-		-	-	-
Cancers				-		
Respiratory	+	-	+	U	-	+
Nervous system	-	-		-	-	
Digestive						
External causes	-		-	-	-	-
Diabetes and endocrine			-	-		-
Senility/ill-defined	-	-		-	-	
Genito-urinary			+			+
Mental/psychoneurotic						
Infectious						
Bones/organs of movement		+				
Blood/blood-forming organs						
Skin/subcutaneous tissues	-	-	+		-	+
Congenital malformations						
Breast cancer			+			+
Unknown	-	-	-	-	-	-

∩ means a concave association between the fertility measure and the risk of mortality.

U means a convex association between the fertility measure and the risk of mortality.

Table 5. Association between age at first birth and cause-specific mortality risk for men

	Cox proportional hazard model not including NPSES as covariate			Cox proportional hazard model including NPSES as covariate		
	All men	Born before 1900	Born in/after 1900	All men	Born before 1900	Born in/after 1900
All cause	-	-	-	-	-	-
<i>Cause of Death</i>						
Cardiovascular	-	-	-	-	-	-
Cancers	-		-	-		-
Respiratory	-	+	-	U	+	-
Nervous system					+	
Digestive	-	-	-	-	-	-
External causes						
Diabetes and endocrine	-		-	-		-
Senility/ill-defined	U	U		U	U	
Genito-urinary	-	-	-	-	+	-
Mental/psychoneurotic		∩			∩	
Infectious	-	+	-	+	+	
Bones/organs of movement						
Blood/blood-forming organs						
Skin/subcutaneous tissues			-			-
Congenital malformations						
Breast cancer						
Unknown	U	U	-	-	-	-

∩ means a concave association between the fertility measure and the risk of mortality.

U means a convex association between the fertility measure and the risk of mortality.

Table 6. Association between parity and cause-specific mortality risk for men

	Cox proportional hazard model not including NPSES as covariate			Cox proportional hazard model including NPSES as covariate		
	All men	Born before 1900	Born in/after 1900	All men	Born before 1900	Born in/after 1900
All cause	-		-	-	-	-
<i>Cause of Death</i>						
Cardiovascular	-	-		-	-	
Cancers	-		-	-		-
Respiratory	-		-	-		-
Nervous system						
Digestive	-			-		-
External causes						
Diabetes and endocrine	+		+	+		+
Senility/ill-defined						
Genito-urinary		+			+	
Mental/psychoneurotic	-	-		-	-	
Infectious						
Bones/organs of movement						
Blood/blood-forming organs						
Skin/subcutaneous tissues	-		-	-		-
Congenital malformations						
Breast cancer						
Unknown		+	+	+	+	-

∩ means a concave association between the fertility measure and the risk of mortality.

U means a convex association between the fertility measure and the risk of mortality.

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Appendix A
FEMALE

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Table 1: Descriptive characteristics of study population

Characteristics	N	%	Min	Max	Mean	St. Dev.
Total women	206,578	100				
Right censored	19,771	9.57	50	109	83.64	9.39
Died with unknown causes of death	35,570	17.22	50	108	78.39	11.52
Died with reported causes of death						
Infectious	1,623	0.79	50	107	77.58	12.10
Breast/ovarian cancer	5,512	2.67	50	102	71.78	11.57
Other cancer	17,910	8.67	50	104	74.50	10.89
Diabetes and endocrine	7,082	3.43	50	106	78.28	10.53
Blood/blood-forming organs	692	0.33	50	101	77.58	11.38
Mental/psychoneurotic	5,294	2.56	50	110	87.38	7.41
Nervous system (Parkinson/AD)	7,820	3.79	50	106	80.96	9.64
Cardiovascular	73,031	35.35	50	108	80.47	10.42
Respiratory (Pneumonia)	11,090	5.37	50	109	80.96	10.70
Digestive (chronic liver/cirrhosis)	6,191	3.00	50	106	77.24	11.82
Genito-urinary	3,677	1.78	50	104	78.29	12.04
Pregnancy/childbirth/puerperium	1	0.00	57	57	57.00	
Skin/subcutaneous tissue	286	0.14	50	104	81.89	10.74
Bones/organs of movement	1,644	0.80	50	105	81.60	10.81
Congenital malformations	130	0.06	50	95	71.75	11.44
Symptoms/senility/ill-defined	5,838	2.83	50	110	85.10	10.40
External causes	3,416	1.65	50	105	77.07	13.00
Total children			1	20	4.256	2.705
Proportion of children deceased before age 18			0.0	1.0	0.07	0.16
Parity						
1 child	28,724	13.90				
2 children	33,182	16.06				
3-5 children	89,715	43.43				
6-8 children	37,585	18.19				
9-11 children	13,615	6.59				
+12 children	3,757	1.82				
Nam-Powers (own)	38,819	18.79	2	99	50.21	26.03
Nam-Powers (husband)- highest of first 4 marriages	140,313	67.92	2	99	55.15	21.38
1 st quartile (2 - 41)	22,645	10.96				
2 nd quartile (42 - 63)	31,541	15.27				
3 rd quartile (64 - 77)	28,191	13.65				
4 th quartile (78 - 99)	27,504	13.31				
Farmer (NP = 40)	30,432	14.73				
Missing	66,265	32.08				
Maternal age at first birth (by percentile)						
< 10 th (< 18)	10,131	4.90				
10 th -24 th (18 - 19)	33,575	16.25				
25 th - 74 th (20 - 25)	109,999	53.25				
75 th - 89 th (26 - 29)	29,730	14.39				
90 th - 94 th (30 - 32)	10,918	5.29				
≥ 95 th (≥ 33)	12,225	5.92				
Maternal age at last birth (by percentile)						
< 10 th (< 24)	17,112	8.28				
10 th - 24 th (24 - 28)	32,851	15.90				
25 th - 74 th (29 - 37)	95,027	46.00				
75 th - 89 th (38 - 41)	40,741	19.72				

Continued on next page

Table 1 – continued from previous page

Characteristics	N	%	Min	Max	Mean	St. Dev.
90 th - 94 th (42)	7,183	3.48				
≥ 95 th (≥ 43)	13,664	6.61				
Maternal birth year						
1860 - 1869	13,525	6.55				
1870 - 1879	17,340	8.39				
1880 - 1889	22,656	10.97				
1890 - 1899	25,775	12.48				
1900 - 1909	30,800	14.91				
1909 - 1919	42,356	20.50				
1920 - 1930	54,126	26.20				

Table 2: All-cause mortality using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.154 (1.132, 1.177)***	1.112 (1.074, 1.152)***	1.158 (1.130, 1.187)***
24 - 28	1.075 (1.060, 1.091)***	1.053 (1.026, 1.080)***	1.080 (1.061, 1.099)***
38 - 41	0.958 (0.945, 0.970)***	0.945 (0.927, 0.964)***	0.965 (0.948, 0.983)***
42	0.940 (0.915, 0.965)***	0.932 (0.901, 0.965)***	0.929 (0.891, 0.969)***
≥43	0.914 (0.894, 0.933)***	0.880 (0.856, 0.906)***	0.952 (0.920, 0.985)**
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.210 (1.184, 1.237)***	1.151 (1.114, 1.190)***	1.254 (1.219, 1.291)***
18 - 19	1.096 (1.081, 1.110)***	1.057 (1.035, 1.079)***	1.123 (1.103, 1.142)***
26 - 29	0.985 (0.972, 0.999)*	0.994 (0.972, 1.017)	0.979 (0.962, 0.997)*
30 - 32	1.012 (0.990, 1.034)	1.000 (0.966, 1.036)	1.016 (0.987, 1.045)
≥33	1.039 (1.016, 1.062)***	1.055 (1.018, 1.094)**	1.024 (0.994, 1.054)
Total children	1.003 (1.001, 1.006)*	1.009 (1.005, 1.013)***	0.996 (0.992, 1.001)
% children died before age 18	1.289 (1.252, 1.328)***	1.248 (1.199, 1.299)***	1.334 (1.276, 1.393)***
Observations	206,578	79,296	127,282
Deaths	186,807	77,723	109,084
AIC	2,652,399	1,026,674	1,625,669
LR Test (df = 12)	1,457.101***	422.231***	1,114.455***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 3: Mortality by infection/parasite related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.026 (0.824, 1.276)	0.924 (0.571, 1.495)	1.069 (0.833, 1.371)
24 - 28	1.166 (1.003, 1.354)*	1.305 (0.947, 1.800)	1.141 (0.962, 1.354)
38 - 41	1.029 (0.892, 1.188)	1.165 (0.904, 1.501)	0.977 (0.820, 1.165)
42	0.936 (0.696, 1.260)	1.111 (0.720, 1.716)	0.854 (0.561, 1.300)
≥43	0.915 (0.720, 1.164)	1.158 (0.816, 1.642)	0.747 (0.519, 1.076)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.179 (0.934, 1.489)	1.048 (0.692, 1.587)	1.250 (0.943, 1.656)
18 - 19	1.120 (0.973, 1.289)	0.942 (0.719, 1.233)	1.201 (1.018, 1.416)*
26 - 29	0.988 (0.847, 1.151)	0.741 (0.539, 1.018)	1.095 (0.919, 1.306)
30 - 32	1.128 (0.895, 1.423)	1.363 (0.917, 2.027)	1.041 (0.781, 1.388)
≥33	1.087 (0.852, 1.387)	1.027 (0.651, 1.620)	1.139 (0.852, 1.522)
Total children	1.016 (0.985, 1.047)	0.994 (0.947, 1.044)	1.033 (0.993, 1.076)
% children died before age 18	1.176 (0.832, 1.662)	1.366 (0.825, 2.262)	1.033 (0.641, 1.663)
Observations	206,578	79,296	127,282
Deaths	1,623	474	1,149
AIC	24,010.97	6,514.179	17,505.48
LR Test (df = 12)	12.573	12.772	15.116

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 4: Mortality by breast/ovarian cancer using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.873 (0.778, 0.980)*	1.013 (0.794, 1.292)	0.863 (0.757, 0.985)*
24 - 28	0.877 (0.807, 0.952)**	0.852 (0.708, 1.026)	0.897 (0.818, 0.985)*
38 - 41	1.091 (1.009, 1.180)*	1.012 (0.867, 1.181)	1.121 (1.025, 1.227)*
42	1.132 (0.959, 1.337)	1.347 (1.034, 1.756)*	1.013 (0.815, 1.259)
≥43	1.087 (0.947, 1.247)	1.142 (0.910, 1.433)	1.071 (0.899, 1.277)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.991 (0.857, 1.145)	0.767 (0.542, 1.085)	1.051 (0.896, 1.233)
18 - 19	0.944 (0.869, 1.026)	1.001 (0.842, 1.191)	0.926 (0.842, 1.018)
26 - 29	1.058 (0.978, 1.145)	1.167 (0.995, 1.368)	1.033 (0.943, 1.131)
30 - 32	1.048 (0.930, 1.182)	0.870 (0.668, 1.133)	1.123 (0.981, 1.286)
≥33	1.104 (0.978, 1.245)	1.267 (1.000, 1.606)	1.070 (0.929, 1.232)
Total children	0.937 (0.921, 0.955)***	0.910 (0.881, 0.940)***	0.958 (0.937, 0.979)***
% children died before age 18	1.195 (0.997, 1.434)	1.387 (1.053, 1.827)*	1.079 (0.849, 1.372)
Observations	206,578	79,296	127,282
Deaths	5,512	1,316	4,196
AIC	85,546.07	18,740.4	66,789.94
LR Test (df = 12)	125.975***	110.174***	55.528***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 5: Mortality by cancers other than breast/ovarian using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.964 (0.903, 1.028)	0.904 (0.795, 1.027)	0.980 (0.908, 1.058)
24 - 28	0.985 (0.941, 1.031)	0.951 (0.869, 1.040)	0.997 (0.945, 1.053)
38 - 41	1.018 (0.975, 1.062)	0.955 (0.890, 1.024)	1.051 (0.995, 1.110)
42	0.938 (0.857, 1.026)	0.880 (0.775, 0.999)*	0.970 (0.852, 1.104)
≥43	0.915 (0.850, 0.984)*	0.843 (0.760, 0.935)**	0.974 (0.875, 1.083)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.174 (1.093, 1.262)***	1.051 (0.929, 1.190)	1.242 (1.138, 1.357)***
18 - 19	1.081 (1.035, 1.129)***	1.032 (0.958, 1.113)	1.105 (1.048, 1.165)***
26 - 29	1.009 (0.964, 1.056)	1.016 (0.939, 1.100)	1.006 (0.952, 1.063)
30 - 32	1.049 (0.978, 1.124)	1.100 (0.977, 1.239)	1.024 (0.940, 1.116)
≥33	1.024 (0.953, 1.101)	0.949 (0.833, 1.080)	1.057 (0.969, 1.154)
Total children	0.987 (0.978, 0.997)**	0.993 (0.979, 1.007)	0.984 (0.972, 0.997)*
% children died before age 18	1.150 (1.040, 1.271)**	1.130 (0.978, 1.304)	1.167 (1.015, 1.342)*
Observations	206,578	79,296	127,282
Deaths	17,910	6,076	11,834
AIC	271,351.1	85,493.08	185,862.9
LR Test (df = 12)	59.694***	31.875**	47.024***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 6: Mortality by aller/endocrine/metabolic/nutrition related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.946 (0.848, 1.054)	0.857 (0.687, 1.069)	0.982 (0.866, 1.114)
24 - 28	0.973 (0.902, 1.050)	0.820 (0.700, 0.961)*	1.034 (0.947, 1.128)
38 - 41	0.948 (0.887, 1.013)	0.970 (0.870, 1.081)	0.922 (0.847, 1.004)
42	0.755 (0.655, 0.870)***	0.744 (0.608, 0.911)**	0.764 (0.624, 0.935)**
≥43	0.799 (0.715, 0.893)***	0.774 (0.660, 0.909)**	0.842 (0.719, 0.987)*
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.282 (1.153, 1.427)***	0.971 (0.799, 1.180)	1.467 (1.291, 1.666)***
18 - 19	1.170 (1.096, 1.249)***	1.059 (0.945, 1.187)	1.225 (1.131, 1.327)***
26 - 29	0.960 (0.890, 1.034)	0.927 (0.811, 1.060)	0.986 (0.900, 1.079)
30 - 32	0.949 (0.842, 1.071)	0.878 (0.707, 1.090)	0.998 (0.863, 1.154)
≥33	1.168 (1.039, 1.313)**	1.089 (0.882, 1.343)	1.228 (1.067, 1.415)**
Total children	1.071 (1.056, 1.086)***	1.061 (1.038, 1.083)***	1.084 (1.064, 1.104)***
% children died before age 18	1.890 (1.630, 2.192)***	1.684 (1.347, 2.106)***	2.073 (1.702, 2.525)***
Observations	206,578	79,296	127,282
Deaths	7,082	2,376	4,706
AIC	104,213.1	32,717.11	71,486.97
LR Test (df = 12)	360.925***	127.947***	266.024***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 7: Mortality by blood/blood-forming organs related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.726 (0.515, 1.023)	0.720 (0.385, 1.346)	0.687 (0.450, 1.048)
24 - 28	0.913 (0.721, 1.156)	0.869 (0.572, 1.319)	0.908 (0.678, 1.215)
38 - 41	0.906 (0.724, 1.133)	0.695 (0.497, 0.972)*	1.154 (0.857, 1.552)
42	1.157 (0.775, 1.727)	0.941 (0.555, 1.595)	1.391 (0.743, 2.605)
≥43	1.185 (0.857, 1.640)	1.087 (0.716, 1.650)	0.974 (0.529, 1.793)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.232 (0.872, 1.741)	1.416 (0.891, 2.251)	1.008 (0.592, 1.719)
18 - 19	1.017 (0.815, 1.269)	0.846 (0.591, 1.211)	1.150 (0.868, 1.523)
26 - 29	0.771 (0.607, 0.980)*	1.091 (0.768, 1.549)	0.587 (0.421, 0.818)**
30 - 32	0.851 (0.599, 1.210)	0.917 (0.521, 1.616)	0.793 (0.505, 1.246)
≥33	0.598 (0.399, 0.895)*	0.854 (0.466, 1.562)	0.452 (0.261, 0.782)**
Total children	0.949 (0.907, 0.993)*	0.985 (0.926, 1.048)	0.910 (0.846, 0.979)*
% children died before age 18	1.785 (1.136, 2.803)*	1.509 (0.801, 2.843)	2.086 (1.103, 3.945)*
Observations	206,578	79,296	127,282
Deaths	692	297	395
AIC	10,017.82	4,060.644	5,963.288
LR Test (df = 12)	20.763	14.121	24.534*

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 8: Mortality by mental/psychoneurotic/personality related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.976 (0.868, 1.097)	0.915 (0.586, 1.428)	0.981 (0.869, 1.108)
24 - 28	0.948 (0.873, 1.030)	0.903 (0.654, 1.248)	0.952 (0.873, 1.037)
38 - 41	1.044 (0.963, 1.131)	0.933 (0.703, 1.238)	1.053 (0.968, 1.145)
42	0.977 (0.811, 1.177)	1.054 (0.619, 1.795)	0.962 (0.788, 1.174)
≥43	0.891 (0.759, 1.046)	0.813 (0.515, 1.284)	0.899 (0.757, 1.068)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.216 (1.055, 1.401)**	1.191 (0.681, 2.083)	1.216 (1.050, 1.409)**
18 - 19	1.084 (0.998, 1.176)	0.939 (0.685, 1.287)	1.095 (1.006, 1.191)*
26 - 29	0.924 (0.852, 1.004)	0.886 (0.645, 1.219)	0.928 (0.852, 1.010)
30 - 32	1.004 (0.886, 1.138)	1.567 (1.057, 2.322)*	0.961 (0.842, 1.097)
≥33	0.937 (0.821, 1.069)	0.796 (0.466, 1.361)	0.948 (0.827, 1.086)
Total children	0.963 (0.944, 0.982)***	0.964 (0.908, 1.024)	0.963 (0.944, 0.983)***
% children died before age 18	1.110 (0.888, 1.387)	1.100 (0.608, 1.990)	1.111 (0.873, 1.412)
Observations	206,578	79,296	127,282
Deaths	5,294	404	4,890
AIC	73,364.37	4,741.925	68,636.49
LR Test (df = 12)	38.847***	15.093	33.705***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 9: Mortality by nervous system/sense organs related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.855 (0.771, 0.948)**	0.868 (0.716, 1.050)	0.844 (0.745, 0.957)**
24 - 28	0.891 (0.829, 0.957)**	0.878 (0.768, 1.004)	0.894 (0.820, 0.974)*
38 - 41	0.973 (0.913, 1.038)	0.981 (0.888, 1.084)	0.963 (0.884, 1.048)
42	0.979 (0.861, 1.113)	0.999 (0.840, 1.189)	0.937 (0.769, 1.143)
≥43	0.977 (0.880, 1.085)	0.946 (0.818, 1.093)	1.025 (0.875, 1.201)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.183 (1.056, 1.325)**	1.119 (0.927, 1.350)	1.218 (1.056, 1.404)**
18 - 19	1.037 (0.970, 1.110)	0.992 (0.887, 1.109)	1.062 (0.976, 1.155)
26 - 29	0.998 (0.933, 1.067)	1.041 (0.934, 1.161)	0.975 (0.896, 1.062)
30 - 32	0.959 (0.864, 1.065)	1.023 (0.865, 1.209)	0.922 (0.805, 1.055)
≥33	0.891 (0.797, 0.995)*	0.833 (0.692, 1.002)	0.931 (0.810, 1.069)
Total children	0.986 (0.972, 1.000)*	0.989 (0.970, 1.009)	0.984 (0.965, 1.004)
% children died before age 18	1.226 (1.055, 1.426)**	1.069 (0.869, 1.316)	1.444 (1.161, 1.796)***
Observations	206,578	79,296	127,282
Deaths	7,820	2,960	4,860
AIC	111,912.7	39,797.51	72,128.71
LR Test (df = 12)	30.213**	12.766	27.906**

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 10: Mortality by circulatory system related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.952 (0.921, 0.984)**	0.912 (0.863, 0.964)**	0.985 (0.944, 1.028)
24 - 28	0.987 (0.964, 1.010)	0.969 (0.932, 1.007)	1.006 (0.976, 1.037)
38 - 41	0.957 (0.937, 0.978)***	0.959 (0.931, 0.987)**	0.948 (0.920, 0.977)***
42	0.953 (0.916, 0.993)*	0.970 (0.922, 1.021)	0.913 (0.854, 0.976)**
≥43	0.916 (0.886, 0.947)***	0.899 (0.862, 0.938)***	0.955 (0.905, 1.008)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.166 (1.125, 1.208)***	1.062 (1.008, 1.119)*	1.262 (1.203, 1.325)***
18 - 19	1.088 (1.066, 1.112)***	1.016 (0.984, 1.048)	1.150 (1.118, 1.184)***
26 - 29	0.936 (0.915, 0.957)***	0.970 (0.938, 1.003)	0.917 (0.889, 0.945)***
30 - 32	0.911 (0.879, 0.944)***	0.899 (0.852, 0.949)***	0.934 (0.890, 0.980)**
≥33	0.955 (0.921, 0.990)*	0.961 (0.910, 1.015)	0.969 (0.923, 1.018)
Total children	1.011 (1.007, 1.015)***	1.007 (1.002, 1.013)*	1.023 (1.016, 1.030)***
% children died before age 18	1.257 (1.199, 1.318)***	1.251 (1.177, 1.330)***	1.258 (1.168, 1.353)***
Observations	206,578	79,296	127,282
Deaths	73,031	34,138	38,893
AIC	1,024,446	446,739.7	577,603
LR Test (df = 12)	509.025***	148.694***	487.150***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 11: Mortality by respiratory system related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.090 (1.006, 1.181)*	1.037 (0.877, 1.226)	1.056 (0.962, 1.159)
24 - 28	1.054 (0.994, 1.117)	1.065 (0.948, 1.197)	1.028 (0.961, 1.100)
38 - 41	0.944 (0.893, 0.998)*	0.930 (0.850, 1.019)	0.951 (0.885, 1.021)
42	0.914 (0.815, 1.024)	0.912 (0.779, 1.068)	0.867 (0.731, 1.029)
≥43	0.920 (0.840, 1.007)	0.860 (0.756, 0.978)*	0.937 (0.818, 1.073)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.337 (1.225, 1.459)***	1.105 (0.947, 1.288)	1.467 (1.319, 1.632)***
18 - 19	1.166 (1.104, 1.230)***	1.017 (0.924, 1.121)	1.241 (1.162, 1.325)***
26 - 29	0.992 (0.936, 1.052)	1.162 (1.051, 1.284)**	0.917 (0.854, 0.986)*
30 - 32	1.059 (0.969, 1.158)	1.088 (0.927, 1.276)	1.035 (0.930, 1.152)
≥33	1.073 (0.979, 1.176)	1.187 (1.008, 1.398)*	1.015 (0.908, 1.135)
Total children	0.990 (0.979, 1.002)	1.017 (0.999, 1.035)	0.969 (0.953, 0.985)***
% children died before age 18	1.458 (1.290, 1.648)***	1.407 (1.172, 1.689)***	1.477 (1.250, 1.744)***
Observations	206,578	79,296	127,282
Deaths	11,090	3,686	7,404
AIC	158,204.4	47,299.17	110,876.9
LR Test (df = 12)	147.954***	30.084**	170.204***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 12: Mortality by digestive system related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.986 (0.884, 1.100)	0.957 (0.780, 1.176)	0.966 (0.847, 1.102)
24 - 28	0.965 (0.891, 1.045)	0.924 (0.796, 1.072)	0.966 (0.878, 1.062)
38 - 41	0.959 (0.891, 1.031)	1.021 (0.914, 1.140)	0.900 (0.815, 0.994)*
42	0.869 (0.748, 1.009)	0.813 (0.662, 0.999)*	0.949 (0.761, 1.184)
≥43	0.862 (0.764, 0.972)*	0.821 (0.697, 0.967)*	0.921 (0.766, 1.107)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.314 (1.170, 1.476)***	1.114 (0.922, 1.347)	1.458 (1.259, 1.688)***
18 - 19	1.152 (1.073, 1.238)***	1.040 (0.925, 1.170)	1.227 (1.120, 1.343)***
26 - 29	0.954 (0.882, 1.032)	0.900 (0.789, 1.027)	0.985 (0.894, 1.086)
30 - 32	0.933 (0.825, 1.055)	0.900 (0.733, 1.106)	0.945 (0.810, 1.103)
≥33	0.928 (0.817, 1.054)	0.969 (0.787, 1.193)	0.902 (0.767, 1.059)
Total children	1.004 (0.988, 1.019)	1.015 (0.993, 1.038)	0.989 (0.967, 1.012)
% children died before age 18	1.340 (1.138, 1.576)***	1.319 (1.049, 1.659)*	1.346 (1.066, 1.698)*
Observations	206,578	79,296	127,282
Deaths	6,191	2,378	3,813
AIC	90,552.98	32,278.23	58,276.49
LR Test (df = 12)	73.125***	32.846**	62.548***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 13: Mortality by genito-urinary related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.882 (0.758, 1.025)	0.745 (0.558, 0.994)*	0.946 (0.790, 1.133)
24 - 28	0.991 (0.893, 1.100)	0.874 (0.718, 1.065)	1.050 (0.927, 1.190)
38 - 41	0.974 (0.887, 1.071)	0.921 (0.798, 1.062)	1.001 (0.883, 1.136)
42	0.997 (0.834, 1.192)	0.984 (0.778, 1.245)	0.957 (0.719, 1.275)
≥43	1.037 (0.898, 1.197)	0.981 (0.808, 1.192)	1.091 (0.871, 1.366)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.261 (1.087, 1.463)**	1.070 (0.851, 1.345)	1.436 (1.182, 1.743)***
18 - 19	1.202 (1.097, 1.317)***	1.104 (0.955, 1.277)	1.266 (1.126, 1.423)***
26 - 29	0.918 (0.828, 1.018)	1.010 (0.857, 1.190)	0.874 (0.765, 0.998)*
30 - 32	0.818 (0.691, 0.970)*	0.915 (0.704, 1.189)	0.769 (0.615, 0.961)*
≥33	0.893 (0.756, 1.055)	0.745 (0.558, 0.996)*	0.998 (0.812, 1.226)
Total children	1.005 (0.986, 1.024)	1.001 (0.974, 1.029)	1.016 (0.987, 1.045)
% children died before age 18	1.393 (1.122, 1.729)**	1.448 (1.082, 1.937)*	1.320 (0.954, 1.826)
Observations	206,578	79,296	127,282
Deaths	3,677	1,470	2,207
AIC	52,881.34	20,033.85	32,850.21
LR Test (df = 12)	60.137***	22.458*	58.950***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 14: Mortality by skin/subcutaneous tissue related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.268 (0.777, 2.071)	1.275 (0.499, 3.258)	1.311 (0.734, 2.340)
24 - 28	0.947 (0.654, 1.371)	1.131 (0.568, 2.254)	0.899 (0.579, 1.398)
38 - 41	0.662 (0.460, 0.955)*	0.885 (0.486, 1.614)	0.562 (0.351, 0.899)*
42	0.932 (0.484, 1.796)	0.852 (0.280, 2.590)	1.086 (0.487, 2.424)
≥43	0.546 (0.285, 1.047)	0.842 (0.343, 2.069)	0.374 (0.132, 1.059)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.934 (0.499, 1.750)	1.274 (0.442, 3.672)	0.807 (0.370, 1.763)
18 - 19	1.035 (0.734, 1.459)	1.228 (0.668, 2.256)	0.960 (0.632, 1.457)
26 - 29	1.124 (0.791, 1.597)	1.320 (0.710, 2.453)	1.051 (0.685, 1.611)
30 - 32	1.265 (0.745, 2.148)	1.889 (0.815, 4.377)	1.016 (0.508, 2.032)
≥33	1.098 (0.600, 2.009)	0.461 (0.101, 2.096)	1.437 (0.734, 2.813)
Total children	1.047 (0.972, 1.128)	1.000 (0.887, 1.128)	1.081 (0.982, 1.190)
% children died before age 18	1.221 (0.548, 2.720)	1.112 (0.339, 3.647)	1.328 (0.454, 3.886)
Observations	206,578	79,296	127,282
Deaths	286	90	196
AIC	4,101.804	1,207.855	2,909.233
LR Test (df = 12)	9.352	6.394	11.673

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 15: Mortality by bones/organs of movement related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.054 (0.855, 1.299)	0.700 (0.404, 1.216)	1.150 (0.915, 1.445)
24 - 28	1.023 (0.881, 1.188)	0.875 (0.609, 1.256)	1.065 (0.903, 1.256)
38 - 41	0.975 (0.844, 1.127)	0.725 (0.537, 0.977)*	1.071 (0.908, 1.263)
42	0.935 (0.685, 1.276)	0.839 (0.497, 1.415)	0.951 (0.644, 1.404)
≥43	0.945 (0.735, 1.214)	0.934 (0.623, 1.401)	0.872 (0.625, 1.219)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.870 (0.659, 1.150)	0.764 (0.409, 1.428)	0.897 (0.657, 1.224)
18 - 19	1.064 (0.922, 1.229)	1.026 (0.747, 1.408)	1.071 (0.912, 1.259)
26 - 29	0.986 (0.852, 1.142)	1.082 (0.786, 1.491)	0.965 (0.818, 1.138)
30 - 32	0.974 (0.774, 1.226)	1.347 (0.859, 2.111)	0.885 (0.676, 1.158)
≥33	0.979 (0.772, 1.241)	1.499 (0.939, 2.393)	0.859 (0.650, 1.134)
Total children	0.984 (0.953, 1.017)	0.984 (0.928, 1.043)	0.991 (0.953, 1.032)
% children died before age 18	1.049 (0.732, 1.504)	1.618 (0.944, 2.771)	0.770 (0.474, 1.251)
Observations	206,578	79,296	127,282
Deaths	1,644	368	1,276
AIC	23,766.45	4,799.069	18,967.89
LR Test (df = 12)	6.801	19.365	10.926

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 16: Mortality by congenital malformations related causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.457 (0.749, 2.833)	0.751 (0.132, 4.288)	1.830 (0.886, 3.779)
24 - 28	1.076 (0.646, 1.793)	1.839 (0.606, 5.584)	0.987 (0.550, 1.774)
38 - 41	0.931 (0.552, 1.570)	2.319 (0.821, 6.550)	0.685 (0.365, 1.286)
42	-	-	-
≥43	0.543 (0.182, 1.621)	1.502 (0.269, 8.384)	0.400 (0.092, 1.744)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.298 (0.072, 1.232)	-	0.342 (0.082, 1.425)
18 - 19	1.006 (0.620, 1.632)	1.685 (0.629, 4.512)	0.874 (0.501, 1.525)
26 - 29	1.039 (0.628, 1.720)	0.696 (0.221, 2.194)	1.163 (0.663, 2.038)
30 - 32	0.272 (0.065, 1.146)	-	0.395 (0.093, 1.685)
≥33	0.629 (0.231, 1.718)	0.533 (0.089, 3.184)	0.613 (0.175, 2.147)
Total children	1.001 (0.889, 1.126)	0.824 (0.656, 1.034)	1.090 (0.952, 1.248)
% children died before age 18	2.064 (0.746, 5.713)	5.181 (1.307, 20.541)*	0.935 (0.201, 4.345)
Observations	206,578	79,296	127,282
Deaths	130	28	102
AIC	2,029.85	395.891	1,643.313
LR Test (df = 12)	24.027*	20.752	17.921

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 17: Mortality by symptoms/senile/ill-defined causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.118 (0.995, 1.256)	1.101 (0.884, 1.370)	1.126 (0.980, 1.295)
24 - 28	1.074 (0.988, 1.167)	1.044 (0.890, 1.224)	1.085 (0.983, 1.197)
38 - 41	0.974 (0.904, 1.050)	0.944 (0.839, 1.061)	0.992 (0.900, 1.094)
42	1.004 (0.871, 1.157)	1.057 (0.873, 1.280)	0.893 (0.713, 1.119)
≥43	0.935 (0.830, 1.052)	0.869 (0.738, 1.024)	1.028 (0.860, 1.228)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.021 (0.891, 1.170)	1.007 (0.819, 1.239)	1.029 (0.859, 1.233)
18 - 19	1.142 (1.060, 1.232)***	1.091 (0.966, 1.233)	1.175 (1.068, 1.293)***
26 - 29	0.970 (0.896, 1.051)	0.943 (0.822, 1.082)	0.986 (0.894, 1.087)
30 - 32	1.024 (0.906, 1.157)	1.212 (0.999, 1.471)	0.928 (0.792, 1.087)
≥33	1.115 (0.986, 1.260)	1.196 (0.975, 1.467)	1.069 (0.916, 1.248)
Total children	1.002 (0.986, 1.018)	1.005 (0.982, 1.029)	1.002 (0.979, 1.026)
% children died before age 18	1.456 (1.225, 1.729)***	1.727 (1.382, 2.159)***	1.146 (0.872, 1.506)
Observations	206,578	79,296	127,282
Deaths	5,838	2,203	3,635
AIC	77,384.87	27,342.6	50,048.8
LR Test (df = 12)	46.777***	37.721***	26.524**

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 18: Mortality by external causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.038 (0.888, 1.212)	0.939 (0.732, 1.205)	1.118 (0.913, 1.369)
24 - 28	0.978 (0.874, 1.095)	0.797 (0.659, 0.964)*	1.109 (0.961, 1.280)
38 - 41	1.074 (0.976, 1.181)	1.094 (0.962, 1.245)	1.009 (0.873, 1.167)
42	1.067 (0.893, 1.276)	1.039 (0.834, 1.295)	1.105 (0.808, 1.512)
≥43	0.896 (0.769, 1.045)	0.813 (0.671, 0.985)*	1.177 (0.910, 1.522)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.062 (0.901, 1.251)	0.951 (0.755, 1.198)	1.203 (0.954, 1.517)
18 - 19	1.000 (0.905, 1.105)	1.015 (0.883, 1.165)	0.979 (0.848, 1.130)
26 - 29	0.917 (0.825, 1.020)	0.903 (0.775, 1.052)	0.935 (0.807, 1.083)
30 - 32	0.947 (0.804, 1.115)	0.848 (0.668, 1.077)	1.048 (0.836, 1.313)
≥33	0.874 (0.736, 1.039)	0.744 (0.576, 0.961)*	1.004 (0.793, 1.270)
Total children	1.000 (0.980, 1.020)	0.992 (0.967, 1.018)	1.010 (0.977, 1.044)
% children died before age 18	1.308 (1.052, 1.627)*	1.367 (1.046, 1.787)*	1.206 (0.824, 1.765)
Observations	206,578	79,296	127,282
Deaths	3,416	1,708	1,708
AIC	48,360.29	22,924.5	25,438.06
LR Test (df = 12)	20.906	31.660**	10.976

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 19: Mortality by unknown causes using Cox proportional hazard model not including NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	2.154 (2.067, 2.244)***	1.891 (1.771, 2.020)***	2.084 (1.971, 2.203)***
24 - 28	1.545 (1.496, 1.596)***	1.447 (1.375, 1.524)***	1.510 (1.446, 1.576)***
38 - 41	0.892 (0.864, 0.922)***	0.893 (0.856, 0.932)***	0.899 (0.855, 0.945)***
42	0.908 (0.855, 0.965)**	0.865 (0.803, 0.931)***	0.993 (0.887, 1.111)
≥43	0.893 (0.851, 0.938)***	0.856 (0.807, 0.909)***	0.907 (0.824, 0.998)*
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.308 (1.249, 1.371)***	1.437 (1.350, 1.530)***	1.185 (1.103, 1.273)***
18 - 19	1.094 (1.061, 1.128)***	1.174 (1.125, 1.224)***	1.027 (0.982, 1.073)
26 - 29	1.112 (1.077, 1.149)***	1.016 (0.968, 1.067)	1.155 (1.105, 1.208)***
30 - 32	1.292 (1.229, 1.358)***	1.167 (1.083, 1.257)***	1.308 (1.222, 1.400)***
≥33	1.316 (1.249, 1.386)***	1.366 (1.269, 1.471)***	1.155 (1.073, 1.243)***
Total children	1.006 (0.999, 1.012)	1.024 (1.015, 1.032)***	0.935 (0.924, 0.946)***
% children died before age 18	1.264 (1.187, 1.347)***	1.114 (1.024, 1.211)*	1.498 (1.360, 1.651)***
Observations	206,578	79,296	127,282
Deaths	35,570	17,750	17,820
AIC	501,323.2	235,858.2	264,958.1
LR Test (df = 12)	2,773.923***	865.999***	2,438.751***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 20: All-cause mortality using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.140 (1.118, 1.163)***	1.094 (1.056, 1.133)***	1.148 (1.120, 1.176)***
24 - 28	1.067 (1.051, 1.082)***	1.044 (1.018, 1.071)***	1.071 (1.052, 1.091)***
38 - 41	0.961 (0.948, 0.974)***	0.947 (0.929, 0.966)***	0.970 (0.952, 0.988)**
42	0.942 (0.917, 0.967)***	0.933 (0.902, 0.966)***	0.934 (0.895, 0.974)**
≥43	0.916 (0.897, 0.936)***	0.882 (0.858, 0.907)***	0.957 (0.924, 0.990)*
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.198 (1.172, 1.224)***	1.143 (1.105, 1.181)***	1.235 (1.200, 1.271)***
18 - 19	1.087 (1.072, 1.101)***	1.052 (1.031, 1.074)***	1.108 (1.089, 1.128)***
26 - 29	0.989 (0.975, 1.003)	0.994 (0.972, 1.017)	0.986 (0.968, 1.004)
30 - 32	1.009 (0.987, 1.032)	0.994 (0.960, 1.030)	1.016 (0.988, 1.046)
≥33	1.033 (1.010, 1.057)**	1.045 (1.008, 1.083)*	1.020 (0.991, 1.050)
Total children	1.003 (1.000, 1.006)	1.008 (1.004, 1.012)***	0.996 (0.991, 1.000)*
% children died before age 18	1.282 (1.245, 1.321)***	1.249 (1.200, 1.300)***	1.323 (1.267, 1.383)***
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.984 (0.967, 1.002)	0.982 (0.954, 1.011)	0.977 (0.955, 0.999)*
64 - 77	0.895 (0.878, 0.911)***	0.912 (0.885, 0.940)***	0.880 (0.859, 0.900)***
78 - 99	0.813 (0.798, 0.829)***	0.850 (0.823, 0.878)***	0.792 (0.774, 0.811)***
Farmer	0.914 (0.898, 0.931)***	0.949 (0.925, 0.973)***	0.881 (0.858, 0.905)***
Missing	0.961 (0.946, 0.976)***	1.012 (0.988, 1.037)	0.925 (0.906, 0.944)***
Observations	206,578	79,296	127,282
Deaths	186,807	77,723	109,084
AIC	2,651,669	1,026,478	1,625,099
LR Test (df = 17)	2,197.269***	628.390***	1,694.868***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 21: Mortality by infection/parasite related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.077 (0.865, 1.340)	0.984 (0.607, 1.594)	1.116 (0.870, 1.431)
24 - 28	1.188 (1.022, 1.380)*	1.361 (0.987, 1.878)	1.156 (0.974, 1.371)
38 - 41	1.024 (0.887, 1.182)	1.148 (0.891, 1.479)	0.976 (0.819, 1.164)
42	0.930 (0.691, 1.251)	1.082 (0.701, 1.671)	0.860 (0.565, 1.309)
≥43	0.913 (0.718, 1.160)	1.142 (0.805, 1.620)	0.750 (0.521, 1.081)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.140 (0.903, 1.439)	1.059 (0.699, 1.602)	1.185 (0.894, 1.572)
18 - 19	1.088 (0.945, 1.253)	0.937 (0.715, 1.227)	1.158 (0.981, 1.367)
26 - 29	1.011 (0.867, 1.179)	0.746 (0.543, 1.026)	1.125 (0.943, 1.341)
30 - 32	1.162 (0.922, 1.465)	1.397 (0.939, 2.076)	1.071 (0.804, 1.428)
≥33	1.122 (0.879, 1.432)	1.075 (0.681, 1.696)	1.164 (0.871, 1.556)
Total children	1.012 (0.981, 1.043)	0.991 (0.944, 1.042)	1.027 (0.987, 1.070)
% children died before age 18	1.146 (0.809, 1.623)	1.331 (0.801, 2.211)	1.009 (0.625, 1.628)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	1.050 (0.878, 1.256)	1.034 (0.728, 1.470)	1.051 (0.852, 1.296)
64 - 77	0.886 (0.735, 1.069)	1.012 (0.706, 1.449)	0.852 (0.684, 1.061)
78 - 99	0.813 (0.673, 0.982)*	0.740 (0.488, 1.123)	0.828 (0.667, 1.028)
Farmer	0.974 (0.805, 1.177)	0.986 (0.727, 1.336)	0.964 (0.749, 1.241)
Missing	0.615 (0.517, 0.732)***	0.599 (0.436, 0.824)**	0.624 (0.507, 0.768)***
Observations	206,578	79,296	127,282
Deaths	1,623	474	1,149
AIC	23,957.65	6,500.828	17,474.58
LR Test (df = 17)	75.888***	36.124**	56.007***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 22: Mortality by breast/ovarian cancer using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.914 (0.814, 1.026)	1.072 (0.840, 1.368)	0.900 (0.788, 1.027)
24 - 28	0.895 (0.823, 0.972)**	0.879 (0.730, 1.059)	0.913 (0.831, 1.002)
38 - 41	1.086 (1.004, 1.174)*	1.005 (0.861, 1.174)	1.117 (1.021, 1.223)*
42	1.132 (0.959, 1.337)	1.343 (1.030, 1.750)*	1.016 (0.817, 1.263)
≥43	1.087 (0.948, 1.248)	1.138 (0.907, 1.429)	1.074 (0.901, 1.280)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.971 (0.840, 1.122)	0.778 (0.550, 1.101)	1.020 (0.870, 1.197)
18 - 19	0.931 (0.857, 1.012)	1.008 (0.848, 1.199)	0.908 (0.825, 0.998)*
26 - 29	1.072 (0.991, 1.160)	1.172 (1.000, 1.374)	1.049 (0.958, 1.149)
30 - 32	1.074 (0.952, 1.211)	0.895 (0.687, 1.165)	1.149 (1.004, 1.316)*
≥33	1.133 (1.004, 1.278)*	1.318 (1.040, 1.672)*	1.093 (0.949, 1.259)
Total children	0.935 (0.918, 0.952)***	0.909 (0.879, 0.939)***	0.955 (0.934, 0.976)***
% children died before age 18	1.188 (0.990, 1.426)	1.374 (1.042, 1.812)*	1.076 (0.845, 1.369)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	1.130 (1.020, 1.252)*	1.063 (0.853, 1.325)	1.143 (1.017, 1.283)*
64 - 77	1.111 (1.002, 1.233)*	1.223 (0.986, 1.516)	1.081 (0.961, 1.217)
78 - 99	1.065 (0.961, 1.181)	1.211 (0.969, 1.513)	1.034 (0.920, 1.163)
Farmer	1.024 (0.914, 1.147)	1.080 (0.886, 1.316)	1.011 (0.877, 1.165)
Missing	0.777 (0.705, 0.856)***	0.764 (0.628, 0.930)**	0.783 (0.700, 0.876)***
Observations	206,578	79,296	127,282
Deaths	5,512	1,316	4,196
AIC	85,437.87	18,710.33	66,717.38
LR Test (df = 17)	244.175***	150.239***	138.092***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 23: Mortality by cancers other than breast/ovarian using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.004 (0.941, 1.071)	0.963 (0.847, 1.095)	1.012 (0.938, 1.092)
24 - 28	1.001 (0.956, 1.048)	0.987 (0.902, 1.079)	1.006 (0.953, 1.062)
38 - 41	1.014 (0.971, 1.058)	0.943 (0.879, 1.012)	1.052 (0.996, 1.111)
42	0.934 (0.854, 1.022)	0.865 (0.762, 0.982)*	0.977 (0.858, 1.112)
≥43	0.914 (0.849, 0.983)*	0.836 (0.754, 0.928)***	0.978 (0.879, 1.088)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.141 (1.062, 1.226)***	1.060 (0.937, 1.199)	1.193 (1.092, 1.303)***
18 - 19	1.057 (1.012, 1.104)*	1.031 (0.957, 1.112)	1.074 (1.018, 1.132)**
26 - 29	1.028 (0.983, 1.076)	1.023 (0.945, 1.107)	1.027 (0.972, 1.086)
30 - 32	1.077 (1.005, 1.155)*	1.138 (1.010, 1.281)*	1.046 (0.960, 1.140)
≥33	1.051 (0.978, 1.130)	0.993 (0.872, 1.131)	1.074 (0.984, 1.172)
Total children	0.983 (0.974, 0.992)***	0.988 (0.975, 1.003)	0.981 (0.968, 0.993)**
% children died before age 18	1.125 (1.017, 1.244)*	1.093 (0.946, 1.263)	1.152 (1.001, 1.326)*
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.953 (0.903, 1.005)	0.947 (0.861, 1.042)	0.960 (0.899, 1.025)
64 - 77	0.890 (0.842, 0.940)***	0.882 (0.799, 0.973)*	0.898 (0.840, 0.961)**
78 - 99	0.777 (0.734, 0.822)***	0.776 (0.697, 0.865)***	0.784 (0.733, 0.839)***
Farmer	0.925 (0.874, 0.979)**	0.941 (0.866, 1.023)	0.874 (0.807, 0.948)**
Missing	0.634 (0.603, 0.667)***	0.556 (0.509, 0.606)***	0.679 (0.637, 0.723)***
Observations	206,578	79,296	127,282
Deaths	17,910	6,076	11,834
AIC	270,854.1	85,202.48	185,637.1
LR Test (df = 17)	566.742***	332.469***	282.770***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 24: Mortality by aller/endocrine/metabolic/nutrition related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.989 (0.887, 1.102)	0.916 (0.734, 1.144)	1.019 (0.898, 1.156)
24 - 28	0.986 (0.914, 1.064)	0.854 (0.729, 1.000)*	1.039 (0.952, 1.133)
38 - 41	0.947 (0.886, 1.012)	0.958 (0.859, 1.069)	0.928 (0.852, 1.010)
42	0.755 (0.656, 0.870)***	0.734 (0.600, 0.899)**	0.776 (0.634, 0.950)*
≥43	0.799 (0.715, 0.892)***	0.769 (0.655, 0.902)**	0.847 (0.723, 0.992)*
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.222 (1.099, 1.360)***	0.973 (0.800, 1.182)	1.371 (1.207, 1.558)***
18 - 19	1.126 (1.055, 1.202)***	1.054 (0.940, 1.181)	1.166 (1.076, 1.263)***
26 - 29	0.991 (0.919, 1.068)	0.937 (0.819, 1.071)	1.023 (0.934, 1.120)
30 - 32	0.986 (0.874, 1.113)	0.911 (0.734, 1.132)	1.033 (0.893, 1.195)
≥33	1.206 (1.073, 1.356)**	1.148 (0.930, 1.417)	1.254 (1.088, 1.444)**
Total children	1.065 (1.050, 1.080)***	1.056 (1.033, 1.079)***	1.076 (1.056, 1.096)***
% children died before age 18	1.825 (1.572, 2.118)***	1.609 (1.284, 2.016)***	2.015 (1.652, 2.456)***
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.957 (0.882, 1.039)	1.029 (0.889, 1.191)	0.931 (0.844, 1.027)
64 - 77	0.795 (0.729, 0.867)***	0.838 (0.716, 0.981)*	0.782 (0.705, 0.867)***
78 - 99	0.600 (0.547, 0.658)***	0.620 (0.516, 0.744)***	0.599 (0.538, 0.668)***
Farmer	0.888 (0.815, 0.967)**	0.887 (0.779, 1.010)	0.894 (0.795, 1.004)
Missing	0.544 (0.502, 0.590)***	0.502 (0.436, 0.578)***	0.570 (0.516, 0.629)***
Observations	206,578	79,296	127,282
Deaths	7,082	2,376	4,706
AIC	103,831.5	32,557.46	71,274.79
LR Test (df = 17)	752.536***	297.597***	488.202***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 25: Mortality by blood/blood-forming organs related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.774 (0.548, 1.092)	0.776 (0.414, 1.454)	0.725 (0.475, 1.107)
24 - 28	0.941 (0.743, 1.192)	0.916 (0.603, 1.392)	0.928 (0.694, 1.243)
38 - 41	0.895 (0.715, 1.119)	0.681 (0.487, 0.952)*	1.143 (0.850, 1.539)
42	1.139 (0.763, 1.699)	0.907 (0.535, 1.539)	1.388 (0.742, 2.598)
≥43	1.172 (0.847, 1.622)	1.066 (0.702, 1.618)	0.973 (0.529, 1.792)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.224 (0.866, 1.730)	1.443 (0.908, 2.293)	0.988 (0.579, 1.687)
18 - 19	1.004 (0.804, 1.253)	0.845 (0.591, 1.210)	1.134 (0.855, 1.504)
26 - 29	0.787 (0.619, 1.000)	1.105 (0.778, 1.568)	0.597 (0.428, 0.833)**
30 - 32	0.881 (0.619, 1.252)	0.953 (0.541, 1.678)	0.815 (0.518, 1.280)
≥33	0.619 (0.413, 0.928)*	0.898 (0.490, 1.645)	0.461 (0.266, 0.798)**
Total children	0.941 (0.899, 0.986)**	0.976 (0.917, 1.039)	0.903 (0.839, 0.972)**
% children died before age 18	1.747 (1.109, 2.750)*	1.457 (0.770, 2.759)	2.070 (1.092, 3.927)*
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.976 (0.735, 1.297)	0.776 (0.487, 1.237)	1.116 (0.771, 1.614)
64 - 77	0.894 (0.667, 1.197)	1.038 (0.669, 1.611)	0.842 (0.569, 1.247)
78 - 99	0.938 (0.701, 1.256)	0.627 (0.365, 1.076)	1.121 (0.776, 1.620)
Farmer	1.173 (0.894, 1.540)	1.107 (0.767, 1.599)	1.173 (0.774, 1.779)
Missing	0.603 (0.460, 0.790)***	0.509 (0.340, 0.762)**	0.693 (0.480, 1.001)
Observations	206,578	79,296	127,282
Deaths	692	297	395
AIC	9,991.765	4,041.903	5,957.506
LR Test (df = 17)	56.823***	42.862***	40.317**

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 26: Mortality by mental/psychoneurotic/personality related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.019 (0.906, 1.145)	0.976 (0.624, 1.526)	1.023 (0.906, 1.155)
24 - 28	0.965 (0.888, 1.049)	0.939 (0.679, 1.298)	0.967 (0.887, 1.054)
38 - 41	1.043 (0.963, 1.131)	0.932 (0.702, 1.238)	1.053 (0.968, 1.145)
42	0.987 (0.819, 1.188)	1.051 (0.617, 1.790)	0.974 (0.798, 1.188)
≥43	0.896 (0.763, 1.051)	0.824 (0.522, 1.300)	0.903 (0.760, 1.072)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.176 (1.020, 1.356)*	1.190 (0.680, 2.080)	1.175 (1.014, 1.361)*
18 - 19	1.062 (0.978, 1.153)	0.938 (0.684, 1.286)	1.071 (0.984, 1.167)
26 - 29	0.941 (0.866, 1.021)	0.887 (0.645, 1.219)	0.944 (0.867, 1.028)
30 - 32	1.026 (0.906, 1.162)	1.601 (1.080, 2.373)*	0.981 (0.859, 1.119)
≥33	0.955 (0.838, 1.090)	0.824 (0.482, 1.410)	0.964 (0.842, 1.105)
Total children	0.962 (0.944, 0.981)***	0.962 (0.905, 1.022)	0.963 (0.943, 0.983)***
% children died before age 18	1.102 (0.881, 1.378)	1.069 (0.589, 1.941)	1.107 (0.870, 1.410)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.989 (0.893, 1.096)	1.195 (0.807, 1.768)	0.974 (0.876, 1.083)
64 - 77	0.992 (0.895, 1.098)	1.056 (0.708, 1.576)	0.985 (0.887, 1.095)
78 - 99	0.912 (0.825, 1.009)	1.108 (0.745, 1.648)	0.900 (0.810, 0.998)*
Farmer	0.798 (0.704, 0.904)***	0.989 (0.684, 1.431)	0.772 (0.674, 0.884)***
Missing	0.671 (0.608, 0.741)***	0.709 (0.492, 1.021)	0.669 (0.603, 0.741)***
Observations	206,578	79,296	127,282
Deaths	5,294	404	4,890
AIC	73,242.34	4,738.426	68,525.6
LR Test (df = 17)	170.875***	28.593*	154.602***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 27: Mortality by nervous system/sense organs related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.893 (0.805, 0.990)*	0.930 (0.768, 1.127)	0.871 (0.769, 0.988)*
24 - 28	0.907 (0.844, 0.975)**	0.908 (0.794, 1.038)	0.903 (0.829, 0.985)*
38 - 41	0.969 (0.908, 1.033)	0.974 (0.882, 1.076)	0.961 (0.882, 1.046)
42	0.975 (0.858, 1.109)	0.990 (0.833, 1.178)	0.941 (0.772, 1.147)
≥43	0.973 (0.876, 1.080)	0.939 (0.813, 1.086)	1.024 (0.874, 1.200)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.162 (1.038, 1.302)**	1.139 (0.944, 1.375)	1.184 (1.026, 1.365)*
18 - 19	1.024 (0.957, 1.095)	0.999 (0.893, 1.117)	1.042 (0.957, 1.134)
26 - 29	1.012 (0.947, 1.082)	1.048 (0.940, 1.168)	0.992 (0.911, 1.080)
30 - 32	0.984 (0.886, 1.093)	1.059 (0.896, 1.252)	0.941 (0.822, 1.077)
≥33	0.914 (0.819, 1.021)	0.876 (0.728, 1.054)	0.945 (0.822, 1.085)
Total children	0.982 (0.969, 0.996)*	0.988 (0.968, 1.008)	0.980 (0.960, 1.000)*
% children died before age 18	1.208 (1.039, 1.406)*	1.042 (0.846, 1.284)	1.428 (1.147, 1.778)**
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.935 (0.859, 1.018)	0.961 (0.835, 1.107)	0.924 (0.831, 1.029)
64 - 77	0.948 (0.871, 1.032)	1.025 (0.892, 1.178)	0.917 (0.824, 1.021)
78 - 99	0.896 (0.823, 0.976)*	0.983 (0.848, 1.139)	0.876 (0.788, 0.973)*
Farmer	0.983 (0.903, 1.071)	0.948 (0.839, 1.071)	1.033 (0.913, 1.169)
Missing	0.670 (0.618, 0.725)***	0.595 (0.523, 0.677)***	0.717 (0.648, 0.794)***
Observations	206,578	79,296	127,282
Deaths	7,820	2,960	4,860
AIC	111,743.5	39,680.42	72,066.06
LR Test (df = 17)	209.383***	139.857***	100.562***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 28: Mortality by circulatory system related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.014 (0.981, 1.049)	0.991 (0.938, 1.048)	1.035 (0.992, 1.080)
24 - 28	1.015 (0.991, 1.039)	1.016 (0.978, 1.056)	1.022 (0.992, 1.053)
38 - 41	0.950 (0.931, 0.970)***	0.946 (0.919, 0.975)***	0.948 (0.920, 0.977)***
42	0.946 (0.908, 0.985)**	0.952 (0.904, 1.002)	0.921 (0.862, 0.985)*
≥43	0.912 (0.882, 0.942)***	0.889 (0.852, 0.928)***	0.960 (0.910, 1.014)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.143 (1.103, 1.184)***	1.079 (1.024, 1.136)**	1.205 (1.148, 1.265)***
18 - 19	1.068 (1.045, 1.091)***	1.017 (0.985, 1.050)	1.113 (1.081, 1.145)***
26 - 29	0.957 (0.935, 0.979)***	0.977 (0.945, 1.010)	0.943 (0.914, 0.973)***
30 - 32	0.945 (0.912, 0.980)**	0.933 (0.884, 0.984)*	0.965 (0.919, 1.012)
≥33	0.994 (0.959, 1.031)	1.014 (0.960, 1.071)	0.995 (0.948, 1.045)
Total children	1.007 (1.002, 1.011)**	1.003 (0.998, 1.009)	1.017 (1.011, 1.024)***
% children died before age 18	1.217 (1.161, 1.276)***	1.202 (1.131, 1.279)***	1.234 (1.147, 1.329)***
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.984 (0.959, 1.011)	0.993 (0.953, 1.035)	0.975 (0.941, 1.010)
64 - 77	0.895 (0.871, 0.920)***	0.927 (0.889, 0.967)***	0.874 (0.843, 0.907)***
78 - 99	0.801 (0.779, 0.824)***	0.875 (0.836, 0.915)***	0.768 (0.740, 0.797)***
Farmer	0.946 (0.921, 0.971)***	0.992 (0.958, 1.028)	0.870 (0.834, 0.907)***
Missing	0.559 (0.545, 0.574)***	0.528 (0.508, 0.548)***	0.593 (0.573, 0.615)***
Observations	206,578	79,296	127,282
Deaths	73,031	34,138	38,893
AIC	1,020,970	444,557.6	576,239.1
LR Test (df = 17)	3,994.060***	2,340.841***	1,861.001***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 29: Mortality by respiratory system related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.146 (1.058, 1.242)***	1.119 (0.946, 1.323)	1.098 (1.000, 1.206)*
24 - 28	1.075 (1.014, 1.139)*	1.119 (0.996, 1.258)	1.038 (0.970, 1.112)
38 - 41	0.940 (0.889, 0.994)*	0.916 (0.836, 1.003)	0.953 (0.888, 1.023)
42	0.909 (0.811, 1.019)	0.887 (0.757, 1.039)	0.879 (0.741, 1.043)
≥43	0.919 (0.840, 1.007)	0.847 (0.745, 0.964)*	0.947 (0.826, 1.085)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.290 (1.182, 1.408)***	1.118 (0.959, 1.304)	1.391 (1.250, 1.547)***
18 - 19	1.131 (1.071, 1.194)***	1.013 (0.919, 1.116)	1.195 (1.119, 1.276)***
26 - 29	1.017 (0.959, 1.078)	1.170 (1.058, 1.293)**	0.941 (0.876, 1.011)
30 - 32	1.094 (1.001, 1.195)*	1.121 (0.956, 1.315)	1.061 (0.953, 1.181)
≥33	1.106 (1.009, 1.212)*	1.242 (1.054, 1.463)**	1.033 (0.924, 1.155)
Total children	0.987 (0.975, 0.998)*	1.011 (0.993, 1.030)	0.966 (0.950, 0.982)***
% children died before age 18	1.414 (1.250, 1.600)***	1.344 (1.118, 1.616)**	1.458 (1.233, 1.723)***
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	1.016 (0.950, 1.086)	0.996 (0.880, 1.126)	1.021 (0.942, 1.107)
64 - 77	0.854 (0.796, 0.916)***	0.829 (0.728, 0.944)**	0.863 (0.794, 0.938)***
78 - 99	0.741 (0.689, 0.796)***	0.740 (0.643, 0.853)***	0.746 (0.685, 0.812)***
Farmer	0.875 (0.815, 0.940)***	0.978 (0.879, 1.087)	0.722 (0.650, 0.802)***
Missing	0.574 (0.538, 0.613)***	0.513 (0.458, 0.575)***	0.610 (0.563, 0.661)***
Observations	206,578	79,296	127,282
Deaths	11,090	3,686	7,404
AIC	157,719.1	47,053.67	110,606.1
LR Test (df = 17)	643.177***	285.584***	450.977***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 30: Mortality by digestive system related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.042 (0.934, 1.163)	1.031 (0.839, 1.266)	1.011 (0.886, 1.154)
24 - 28	0.987 (0.912, 1.069)	0.964 (0.831, 1.120)	0.979 (0.890, 1.077)
38 - 41	0.952 (0.886, 1.024)	1.008 (0.903, 1.126)	0.899 (0.814, 0.992)*
42	0.865 (0.744, 1.004)	0.800 (0.651, 0.983)*	0.955 (0.766, 1.192)
≥43	0.860 (0.762, 0.969)*	0.813 (0.690, 0.958)*	0.926 (0.770, 1.113)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.279 (1.139, 1.437)***	1.129 (0.934, 1.364)	1.390 (1.200, 1.610)***
18 - 19	1.127 (1.049, 1.211)**	1.041 (0.926, 1.171)	1.185 (1.082, 1.298)***
26 - 29	0.974 (0.900, 1.053)	0.905 (0.793, 1.033)	1.012 (0.918, 1.116)
30 - 32	0.964 (0.853, 1.091)	0.930 (0.757, 1.143)	0.975 (0.835, 1.137)
≥33	0.959 (0.845, 1.089)	1.019 (0.827, 1.254)	0.921 (0.783, 1.082)
Total children	0.999 (0.983, 1.014)	1.012 (0.990, 1.035)	0.982 (0.960, 1.005)
% children died before age 18	1.306 (1.109, 1.538)**	1.279 (1.015, 1.611)*	1.321 (1.046, 1.669)*
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	1.025 (0.936, 1.122)	1.043 (0.893, 1.218)	1.009 (0.902, 1.128)
64 - 77	0.857 (0.779, 0.943)**	0.971 (0.827, 1.141)	0.805 (0.715, 0.906)***
78 - 99	0.827 (0.751, 0.911)***	0.911 (0.767, 1.083)	0.794 (0.706, 0.893)***
Farmer	0.959 (0.874, 1.053)	1.013 (0.884, 1.160)	0.901 (0.787, 1.030)
Missing	0.591 (0.541, 0.646)***	0.581 (0.503, 0.671)***	0.598 (0.534, 0.668)***
Observations	206,578	79,296	127,282
Deaths	6,191	2,378	3,813
AIC	90,304.68	32,164.52	58,145.12
LR Test (df = 17)	331.427***	156.555***	203.909***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 31: Mortality by genito-urinary related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	0.924 (0.795, 1.075)	0.795 (0.595, 1.063)	0.983 (0.821, 1.177)
24 - 28	1.010 (0.910, 1.122)	0.914 (0.751, 1.113)	1.060 (0.935, 1.201)
38 - 41	0.967 (0.880, 1.062)	0.905 (0.784, 1.044)	1.002 (0.883, 1.136)
42	0.984 (0.822, 1.176)	0.956 (0.756, 1.210)	0.963 (0.723, 1.283)
≥43	1.030 (0.892, 1.190)	0.968 (0.797, 1.175)	1.095 (0.875, 1.372)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.232 (1.062, 1.429)**	1.086 (0.864, 1.365)	1.363 (1.122, 1.655)**
18 - 19	1.173 (1.071, 1.285)***	1.103 (0.954, 1.276)	1.220 (1.085, 1.372)***
26 - 29	0.939 (0.847, 1.040)	1.014 (0.860, 1.195)	0.898 (0.787, 1.026)
30 - 32	0.843 (0.712, 0.999)*	0.940 (0.723, 1.221)	0.790 (0.632, 0.988)*
≥33	0.921 (0.780, 1.089)	0.778 (0.582, 1.040)	1.017 (0.828, 1.250)
Total children	0.999 (0.980, 1.019)	0.996 (0.969, 1.024)	1.010 (0.981, 1.039)
% children died before age 18	1.350 (1.086, 1.679)**	1.399 (1.043, 1.875)*	1.289 (0.930, 1.786)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.920 (0.817, 1.036)	0.820 (0.669, 1.005)	0.968 (0.835, 1.123)
64 - 77	0.785 (0.694, 0.889)***	0.846 (0.689, 1.040)	0.767 (0.656, 0.897)***
78 - 99	0.717 (0.631, 0.814)***	0.692 (0.546, 0.876)**	0.738 (0.632, 0.861)***
Farmer	0.958 (0.852, 1.077)	0.963 (0.817, 1.136)	0.925 (0.776, 1.102)
Missing	0.570 (0.509, 0.639)***	0.536 (0.449, 0.640)***	0.604 (0.522, 0.700)***
Observations	206,578	79,296	127,282
Deaths	3,677	1,470	2,207
AIC	52,732.97	19,959.68	32,784.78
LR Test (df = 17)	218.500***	106.637***	134.384***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 32: Mortality by skin/subcutaneous tissue related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.342 (0.821, 2.194)	1.359 (0.530, 3.483)	1.382 (0.774, 2.467)
24 - 28	0.968 (0.668, 1.402)	1.177 (0.590, 2.347)	0.913 (0.587, 1.419)
38 - 41	0.660 (0.458, 0.952)*	0.881 (0.483, 1.605)	0.561 (0.351, 0.898)*
42	0.934 (0.485, 1.800)	0.849 (0.279, 2.583)	1.096 (0.492, 2.446)
≥43	0.549 (0.286, 1.052)	0.849 (0.345, 2.086)	0.376 (0.133, 1.065)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.901 (0.481, 1.689)	1.285 (0.445, 3.704)	0.765 (0.350, 1.673)
18 - 19	1.012 (0.717, 1.429)	1.231 (0.669, 2.264)	0.929 (0.611, 1.413)
26 - 29	1.143 (0.804, 1.625)	1.324 (0.712, 2.461)	1.076 (0.702, 1.651)
30 - 32	1.308 (0.770, 2.221)	1.941 (0.838, 4.498)	1.049 (0.525, 2.099)
≥33	1.132 (0.618, 2.072)	0.487 (0.107, 2.216)	1.463 (0.747, 2.867)
Total children	1.045 (0.969, 1.126)	1.000 (0.885, 1.130)	1.077 (0.978, 1.186)
% children died before age 18	1.181 (0.528, 2.642)	1.058 (0.321, 3.493)	1.303 (0.443, 3.836)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.877 (0.579, 1.328)	1.043 (0.482, 2.258)	0.809 (0.495, 1.323)
64 - 77	0.848 (0.557, 1.289)	1.049 (0.483, 2.277)	0.774 (0.470, 1.273)
78 - 99	0.778 (0.510, 1.187)	0.913 (0.400, 2.087)	0.724 (0.443, 1.185)
Farmer	0.720 (0.457, 1.134)	0.795 (0.386, 1.637)	0.704 (0.384, 1.293)
Missing	0.519 (0.347, 0.776)**	0.566 (0.273, 1.170)	0.498 (0.306, 0.808)**
Observations	206,578	79,296	127,282
Deaths	286	90	196
AIC	4,097.918	1,212.852	2,909.872
LR Test (df = 17)	23.238	11.397	21.034

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 33: Mortality by bones/organs of movement related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.105 (0.896, 1.362)	0.755 (0.434, 1.312)	1.197 (0.952, 1.505)
24 - 28	1.046 (0.901, 1.214)	0.916 (0.638, 1.316)	1.083 (0.918, 1.277)
38 - 41	0.969 (0.838, 1.120)	0.716 (0.531, 0.966)*	1.066 (0.904, 1.257)
42	0.930 (0.682, 1.269)	0.824 (0.488, 1.391)	0.952 (0.645, 1.406)
≥43	0.942 (0.733, 1.210)	0.929 (0.619, 1.393)	0.873 (0.625, 1.220)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.855 (0.647, 1.131)	0.782 (0.419, 1.461)	0.875 (0.640, 1.195)
18 - 19	1.051 (0.910, 1.214)	1.038 (0.755, 1.426)	1.053 (0.896, 1.239)
26 - 29	0.999 (0.863, 1.158)	1.075 (0.780, 1.480)	0.979 (0.830, 1.156)
30 - 32	0.999 (0.793, 1.258)	1.381 (0.881, 2.165)	0.906 (0.692, 1.186)
≥33	1.001 (0.790, 1.270)	1.555 (0.974, 2.484)	0.875 (0.662, 1.156)
Total children	0.980 (0.948, 1.012)	0.977 (0.921, 1.037)	0.988 (0.949, 1.028)
% children died before age 18	1.032 (0.719, 1.481)	1.565 (0.910, 2.693)	0.761 (0.468, 1.238)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	1.028 (0.854, 1.238)	0.663 (0.444, 0.990)*	1.173 (0.947, 1.453)
64 - 77	0.906 (0.749, 1.096)	0.547 (0.355, 0.841)**	1.045 (0.839, 1.301)
78 - 99	1.023 (0.851, 1.228)	0.947 (0.649, 1.382)	1.094 (0.884, 1.354)
Farmer	1.050 (0.861, 1.281)	0.836 (0.603, 1.158)	1.120 (0.871, 1.440)
Missing	0.696 (0.583, 0.831)***	0.450 (0.318, 0.637)***	0.809 (0.656, 0.996)*
Observations	206,578	79,296	127,282
Deaths	1,644	368	1,276
AIC	23,734.07	4,776.69	18,954.32
LR Test (df = 17)	49.181***	51.743***	34.491**

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 34: Mortality by congenital malformations related causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.524 (0.782, 2.972)	0.811 (0.141, 4.655)	1.896 (0.915, 3.926)
24 - 28	1.100 (0.660, 1.835)	1.913 (0.630, 5.809)	1.005 (0.559, 1.808)
38 - 41	0.928 (0.550, 1.565)	2.360 (0.835, 6.670)	0.681 (0.363, 1.279)
42	-	-	-
≥43	0.543 (0.182, 1.622)	1.527 (0.273, 8.529)	0.397 (0.091, 1.734)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.296 (0.072, 1.225)	-	0.340 (0.082, 1.418)
18 - 19	1.004 (0.618, 1.632)	1.699 (0.633, 4.557)	0.873 (0.499, 1.526)
26 - 29	1.043 (0.630, 1.727)	0.708 (0.225, 2.233)	1.165 (0.664, 2.044)
30 - 32	0.277 (0.066, 1.164)	-	0.401 (0.094, 1.708)
≥33	0.640 (0.234, 1.748)	0.550 (0.092, 3.295)	0.621 (0.177, 2.176)
Total children	0.998 (0.886, 1.123)	0.821 (0.652, 1.035)	1.086 (0.947, 1.245)
% children died before age 18	2.063 (0.743, 5.731)	5.228 (1.302, 20.990)*	0.933 (0.200, 4.355)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.958 (0.506, 1.815)	1.135 (0.303, 4.249)	0.935 (0.450, 1.942)
64 - 77	0.794 (0.404, 1.559)	0.688 (0.153, 3.086)	0.827 (0.387, 1.769)
78 - 99	1.073 (0.570, 2.021)	1.125 (0.279, 4.535)	1.078 (0.528, 2.204)
Farmer	0.910 (0.450, 1.840)	0.756 (0.211, 2.716)	1.033 (0.444, 2.403)
Missing	0.705 (0.385, 1.290)	0.535 (0.150, 1.906)	0.764 (0.383, 1.525)
Observations	206,578	79,296	127,282
Deaths	130	28	102
AIC	2,036.684	403.583	1,651.544
LR Test (df = 17)	27.193	23.060	19.690

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 35: Mortality by symptoms/senile/ill-defined causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.172 (1.043, 1.316)**	1.153 (0.926, 1.436)	1.177 (1.024, 1.354)*
24 - 28	1.092 (1.005, 1.187)*	1.081 (0.922, 1.267)	1.099 (0.995, 1.213)
38 - 41	0.970 (0.900, 1.045)	0.931 (0.828, 1.046)	0.993 (0.901, 1.095)
42	0.998 (0.865, 1.150)	1.033 (0.853, 1.250)	0.904 (0.722, 1.133)
≥43	0.931 (0.827, 1.048)	0.859 (0.729, 1.012)	1.034 (0.866, 1.235)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	0.993 (0.867, 1.138)	1.016 (0.826, 1.250)	0.981 (0.818, 1.176)
18 - 19	1.112 (1.031, 1.199)**	1.087 (0.962, 1.228)	1.133 (1.030, 1.247)*
26 - 29	0.996 (0.920, 1.079)	0.946 (0.825, 1.085)	1.016 (0.921, 1.121)
30 - 32	1.058 (0.936, 1.195)	1.236 (1.018, 1.499)*	0.958 (0.818, 1.123)
≥33	1.150 (1.017, 1.301)*	1.237 (1.008, 1.518)*	1.094 (0.937, 1.277)
Total children	0.999 (0.983, 1.015)	1.001 (0.978, 1.024)	1.000 (0.976, 1.023)
% children died before age 18	1.410 (1.186, 1.677)***	1.654 (1.321, 2.071)***	1.123 (0.853, 1.477)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.903 (0.822, 0.992)*	0.818 (0.700, 0.956)*	0.974 (0.864, 1.098)
64 - 77	0.834 (0.758, 0.918)***	0.730 (0.621, 0.859)***	0.911 (0.808, 1.028)
78 - 99	0.683 (0.619, 0.754)***	0.512 (0.422, 0.622)***	0.771 (0.683, 0.870)***
Farmer	0.848 (0.771, 0.933)***	0.795 (0.697, 0.906)***	0.854 (0.739, 0.987)*
Missing	0.562 (0.513, 0.614)***	0.481 (0.418, 0.553)***	0.628 (0.558, 0.707)***
Observations	206,578	79,296	127,282
Deaths	5,838	2,203	3,635
AIC	77,163.45	27,208.13	49,955.45
LR Test (df = 17)	278.193***	182.187***	129.878***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 36: Mortality by external causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.092 (0.935, 1.276)	1.008 (0.785, 1.294)	1.158 (0.945, 1.419)
24 - 28	1.000 (0.894, 1.120)	0.830 (0.686, 1.004)	1.124 (0.974, 1.297)
38 - 41	1.064 (0.967, 1.170)	1.077 (0.947, 1.225)	1.007 (0.871, 1.164)
42	1.055 (0.882, 1.260)	1.016 (0.816, 1.267)	1.109 (0.810, 1.517)
≥43	0.889 (0.763, 1.037)	0.802 (0.662, 0.972)*	1.175 (0.909, 1.520)
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.053 (0.893, 1.240)	0.969 (0.769, 1.221)	1.176 (0.931, 1.484)
18 - 19	0.987 (0.893, 1.091)	1.014 (0.883, 1.165)	0.966 (0.836, 1.116)
26 - 29	0.931 (0.837, 1.034)	0.907 (0.779, 1.057)	0.947 (0.817, 1.097)
30 - 32	0.974 (0.827, 1.147)	0.876 (0.690, 1.113)	1.066 (0.851, 1.336)
≥33	0.903 (0.760, 1.073)	0.782 (0.605, 1.009)	1.020 (0.806, 1.290)
Total children	0.997 (0.977, 1.017)	0.989 (0.964, 1.015)	1.007 (0.974, 1.041)
% children died before age 18	1.283 (1.030, 1.597)*	1.324 (1.011, 1.734)*	1.204 (0.821, 1.765)
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.974 (0.857, 1.108)	1.142 (0.951, 1.372)	0.861 (0.720, 1.030)
64 - 77	0.936 (0.822, 1.066)	0.975 (0.805, 1.182)	0.906 (0.758, 1.082)
78 - 99	0.896 (0.785, 1.022)	0.874 (0.707, 1.081)	0.899 (0.755, 1.070)
Farmer	1.007 (0.889, 1.140)	1.047 (0.892, 1.229)	0.928 (0.752, 1.146)
Missing	0.635 (0.563, 0.716)***	0.596 (0.502, 0.708)***	0.678 (0.572, 0.803)***
Observations	206,578	79,296	127,282
Deaths	3,416	1,708	1,708
AIC	48,259.71	22,840.92	25,418.26
LR Test (df = 17)	131.489***	125.243***	40.778**

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 37: Mortality by unknown causes using Cox proportional hazard model with NPSES as covariate

	All women	Born Before 1900	Born In/After 1900
Maternal age at last birth			
29 - 37	Ref	Ref	Ref
< 24	1.643 (1.576, 1.712)***	1.438 (1.346, 1.535)***	1.636 (1.547, 1.730)***
24 - 28	1.342 (1.299, 1.387)***	1.222 (1.160, 1.286)***	1.354 (1.296, 1.413)***
38 - 41	0.937 (0.907, 0.968)***	0.946 (0.906, 0.987)*	0.927 (0.882, 0.976)**
42	0.953 (0.897, 1.013)	0.937 (0.870, 1.008)	0.978 (0.874, 1.095)
≥43	0.921 (0.877, 0.967)***	0.900 (0.848, 0.955)***	0.904 (0.821, 0.995)*
Maternal age at first birth			
20 - 25	Ref	Ref	Ref
< 18	1.340 (1.278, 1.405)***	1.330 (1.249, 1.416)***	1.340 (1.248, 1.440)***
18 - 19	1.134 (1.100, 1.170)***	1.149 (1.102, 1.199)***	1.112 (1.063, 1.162)***
26 - 29	1.043 (1.009, 1.077)*	0.997 (0.949, 1.047)	1.056 (1.010, 1.104)*
30 - 32	1.121 (1.067, 1.179)***	1.021 (0.948, 1.101)	1.151 (1.075, 1.232)***
≥33	1.108 (1.052, 1.167)***	1.111 (1.032, 1.196)**	1.037 (0.963, 1.116)
Total children	1.017 (1.011, 1.024)***	1.030 (1.022, 1.039)***	0.965 (0.954, 0.976)***
% children died before age 18	1.366 (1.284, 1.453)***	1.254 (1.156, 1.361)***	1.520 (1.382, 1.672)***
Highest Nam-Powers (husband)			
2 - 41	Ref	Ref	Ref
42 - 63	0.949 (0.892, 1.010)	0.972 (0.885, 1.067)	0.922 (0.848, 1.001)
64 - 77	0.864 (0.810, 0.921)***	0.867 (0.786, 0.956)**	0.845 (0.776, 0.920)***
78 - 99	0.865 (0.811, 0.922)***	0.896 (0.808, 0.993)*	0.826 (0.760, 0.899)***
Farmer	0.835 (0.786, 0.888)***	0.809 (0.746, 0.879)***	0.944 (0.858, 1.039)
Missing	5.005 (4.770, 5.251)***	5.379 (5.019, 5.765)***	4.558 (4.264, 4.873)***
Observations	206,578	79,296	127,282
Deaths	35,570	17,750	17,820
AIC	477,357.9	222,872.1	254,175.1
LR Test (df = 17)	26,749.220***	13,862.140***	13,231.840***

Note:

*p<0.05; **p<0.01; ***p<0.001

Appendix B
MALE

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Table 1: Descriptive characteristics of study population

Characteristics	N	%	Min	Max	Mean	St. Dev.
Total men	157,275	100				
Right censored	7,535	4.79	50	109	83.63	10.70
Died with unknown causes of death	25,583	16.27	50	108	75.14	11.32
Died with reported causes of death						
Infectious	1,339	0.85	50	101	72.70	12.86
Breast cancer	16	0.01	52	87	74.19	9.93
Other cancer	21,754	13.83	50	105	74.97	10.19
Diabetes and endocrine	3,811	2.42	50	104	78.06	10.01
Blood/blood-forming organs	514	0.33	50	99	75.54	10.90
Mental/psychoneurotic	2,285	1.45	50	104	84.54	9.57
Nervous system (Parkinson/AD)	5,258	3.34	50	103	79.60	9.51
Cardiovascular	60,735	38.62	50	107	76.27	10.94
Respiratory (Pneumonia)	12,369	7.86	50	104	77.65	10.79
Digestive (chronic liver/cirrhosis)	4,580	2.91	50	105	73.66	11.86
Genito-urinary	3,129	1.99	50	105	77.19	11.63
Skin/subcutaneous tissue	128	0.08	50	105	80.33	11.99
Bones/organs of movement	617	0.39	50	101	78.49	11.14
Congenital malformations	90	0.06	50	93	68.07	11.43
Symptoms/senility/ill-defined	3,698	2.35	50	105	79.08	12.45
External causes	3,834	2.44	50	102	69.77	13.23
Total children			1	27	4.242	2.585
Proportion of children deceased before age 18			0.0	1.0	0.07	0.15
Parity						
1 child	19,213	12.22				
2 children	25,064	15.94				
3-5 children	72,222	45.92				
6-8 children	29,159	18.54				
9-11 children	9,327	5.93				
+12 children	2,290	1.46				
Nam-Powers (own)	113,189	72.0	2	99	55.83	21.48
1 st quartile (2 - 41)	18,158	11.55				
2 nd quartile (42 - 63)	26,632	16.93				
3 rd quartile (64 - 77)	22,264	14.16				
4 th quartile (78 - 99)	23,300	14.81				
Farmer (NP = 40)	22,835	14.52				
Missing	44,086	28.03				
Paternal age at first birth (by percentile)						
< 10 th (< 21)	8,668	5.51				
10 th -24 th (21 - 22)	22,218	14.13				
25 th - 74 th (23 - 28)	81,542	51.85				
75 th - 89 th (29 - 33)	28,893	18.37				
90 th - 94 th (34 - 37)	9,047	5.75				
≥ 95 th (≥ 38)	6,907	4.39				
Paternal age at last birth (by percentile)						
< 10 th (< 28)	13,724	8.73				
10 th - 24 th (28 - 32)	26,896	17.10				
25 th - 74 th (33 - 42)	81,493	51.82				
75 th - 89 th (43 - 46)	23,557	14.98				
90 th - 94 th (47 - 48)	7,076	4.50				
≥ 95 th (≥ 49)	4,529	2.88				

Continued on next page

Table 1 – continued from previous page

Characteristics	N	%	Min	Max	Mean	St. Dev.
Paternal birth year						
1860 - 1869	9,942	6.32				
1870 - 1879	13,412	8.53				
1880 - 1889	17,768	11.30				
1890 - 1899	20,738	13.19				
1900 - 1909	26,394	16.78				
1909 - 1919	35,897	22.82				
1920 - 1930	33,124	21.06				

Table 2: All-cause mortality using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.140 (1.116, 1.166)***	1.176 (1.131, 1.223)***	1.119 (1.090, 1.150)***
28 - 32	1.075 (1.058, 1.092)***	1.082 (1.053, 1.113)***	1.068 (1.048, 1.089)***
43 - 46	0.980 (0.964, 0.996)*	0.964 (0.942, 0.986)**	0.993 (0.970, 1.017)
47 - 48	0.966 (0.940, 0.992)*	0.932 (0.901, 0.965)***	1.014 (0.971, 1.058)
≥49	0.977 (0.946, 1.010)	0.966 (0.928, 1.006)	0.972 (0.918, 1.030)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.213 (1.184, 1.242)***	1.159 (1.112, 1.208)***	1.244 (1.209, 1.281)***
21 - 22	1.098 (1.081, 1.115)***	1.066 (1.039, 1.093)***	1.119 (1.097, 1.142)***
29 - 33	0.970 (0.956, 0.985)***	0.960 (0.938, 0.982)***	0.978 (0.959, 0.997)*
34 - 37	1.003 (0.979, 1.028)	1.007 (0.969, 1.045)	1.000 (0.969, 1.032)
≥38	1.005 (0.976, 1.034)	1.019 (0.975, 1.064)	0.994 (0.956, 1.033)
Total children	0.991 (0.988, 0.994)***	0.996 (0.991, 1.000)	0.987 (0.982, 0.992)***
% children died before age 18	1.186 (1.145, 1.228)***	1.186 (1.132, 1.242)***	1.184 (1.123, 1.249)***
Observations	157,275	61,860	95,415
Deaths	149,740	60,977	88,763
AIC	2,049,535	777,130.6	1,272,402
LR Test (df = 12)	1,064.330***	372.964***	717.923***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 3: Mortality by infection/parasite related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.928 (0.721, 1.193)	1.000 (0.637, 1.570)	0.887 (0.650, 1.211)
28 - 32	0.920 (0.773, 1.095)	1.133 (0.850, 1.509)	0.824 (0.660, 1.028)
43 - 46	1.036 (0.879, 1.220)	1.062 (0.854, 1.321)	0.982 (0.761, 1.266)
47 - 48	0.804 (0.603, 1.071)	0.794 (0.561, 1.126)	0.768 (0.450, 1.309)
≥49	1.098 (0.806, 1.494)	1.029 (0.710, 1.491)	1.158 (0.637, 2.104)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.283 (1.006, 1.637)*	1.050 (0.695, 1.586)	1.440 (1.064, 1.950)*
21 - 22	0.833 (0.694, 1.000)*	0.611 (0.450, 0.831)**	1.013 (0.806, 1.274)
29 - 33	1.005 (0.862, 1.171)	0.986 (0.786, 1.237)	1.037 (0.842, 1.277)
34 - 37	1.022 (0.794, 1.314)	1.197 (0.839, 1.707)	0.910 (0.634, 1.306)
≥38	1.125 (0.842, 1.503)	1.496 (1.017, 2.202)*	0.824 (0.520, 1.305)
Total children	0.995 (0.964, 1.028)	1.009 (0.967, 1.053)	0.998 (0.948, 1.050)
% children died before age 18	1.545 (1.098, 2.173)*	1.653 (1.089, 2.508)*	1.330 (0.738, 2.399)
Observations	157,275	61,860	95,415
Deaths	1,339	617	722
AIC	18,739.42	8,336.855	10,409.21
LR Test (df = 12)	21.849*	27.254**	11.958

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 4: Mortality by breast cancer using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.979 (0.150, 6.373)	0.563 (0.042, 7.485)	2.706 (0.157, 46.711)
28 - 32	0.293 (0.034, 2.548)	0.459 (0.047, 4.515)	0.000 (0.000, <i>Inf.</i> 0.000)
43 - 46	2.204 (0.571, 8.507)	1.152 (0.199, 6.664)	7.149 (0.820, 62.355)
47 - 48	1.705 (0.179, 16.232)	-	18.273 (1.209, 276.178)*
≥49	-	-	-
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	-	-	-
21 - 22	0.391 (0.049, 3.137)	0.870 (0.098, 7.730)	-
29 - 33	0.407 (0.082, 2.027)	0.300 (0.032, 2.801)	0.545 (0.055, 5.402)
34 - 37	-	-	-
≥38	0.984 (0.129, 7.519)	1.574 (0.159, 15.626)	-
Total children	0.805 (0.584, 1.109)	0.734 (0.476, 1.132)	0.953 (0.590, 1.537)
% children died before age 18	4.181 (0.483, 36.190)	3.186 (0.293, 34.631)	10.579 (0.134, 836.444)
Observations	157,275	61,860	95,415
Deaths	16	10	6
AIC	233.435	147.686	97.041
LR Test (df = 12)	13.963	12.390	14.280

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 5: Mortality by cancers other than breast using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.969 (0.915, 1.027)	0.948 (0.839, 1.072)	0.966 (0.904, 1.032)
28 - 32	0.998 (0.958, 1.039)	1.008 (0.927, 1.095)	0.992 (0.947, 1.039)
43 - 46	1.017 (0.974, 1.063)	0.963 (0.897, 1.033)	1.052 (0.995, 1.113)
47 - 48	1.010 (0.937, 1.088)	0.998 (0.898, 1.108)	0.999 (0.896, 1.114)
≥49	1.073 (0.981, 1.175)	1.022 (0.903, 1.156)	1.123 (0.980, 1.286)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.163 (1.094, 1.237)***	1.041 (0.914, 1.185)	1.210 (1.128, 1.298)***
21 - 22	1.081 (1.037, 1.126)***	1.004 (0.929, 1.085)	1.115 (1.062, 1.170)***
29 - 33	1.001 (0.963, 1.040)	0.949 (0.886, 1.018)	1.023 (0.977, 1.071)
34 - 37	0.985 (0.925, 1.050)	0.937 (0.835, 1.052)	1.003 (0.929, 1.082)
≥38	0.977 (0.905, 1.055)	0.917 (0.802, 1.049)	1.003 (0.914, 1.101)
Total children	0.982 (0.974, 0.991)***	0.989 (0.976, 1.002)	0.976 (0.965, 0.987)***
% children died before age 18	1.178 (1.071, 1.297)***	1.211 (1.052, 1.394)**	1.150 (1.008, 1.311)*
Observations	157,275	61,860	95,415
Deaths	21,754	6,576	15,178
AIC	310,870.8	86,801.15	224,074.3
LR Test (df = 12)	56.847***	15.611	60.565***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 6: Mortality by aller/endocrine/metabolic/nutrition related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.900 (0.778, 1.041)	0.897 (0.642, 1.253)	0.898 (0.762, 1.058)
28 - 32	1.083 (0.985, 1.192)	1.094 (0.884, 1.353)	1.081 (0.971, 1.203)
43 - 46	0.941 (0.847, 1.045)	0.891 (0.744, 1.067)	0.977 (0.858, 1.112)
47 - 48	0.946 (0.792, 1.130)	1.004 (0.776, 1.300)	0.895 (0.695, 1.153)
≥49	0.799 (0.631, 1.012)	0.974 (0.714, 1.329)	0.595 (0.400, 0.885)*
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.250 (1.087, 1.438)**	1.119 (0.815, 1.536)	1.290 (1.104, 1.508)**
21 - 22	1.059 (0.961, 1.168)	1.127 (0.932, 1.362)	1.040 (0.928, 1.165)
29 - 33	0.974 (0.888, 1.070)	0.970 (0.810, 1.160)	0.973 (0.872, 1.086)
34 - 37	1.061 (0.909, 1.238)	0.946 (0.695, 1.288)	1.101 (0.920, 1.317)
≥38	1.123 (0.932, 1.353)	1.024 (0.723, 1.450)	1.164 (0.934, 1.452)
Total children	1.034 (1.014, 1.055)***	1.032 (0.999, 1.067)	1.033 (1.007, 1.060)*
% children died before age 18	1.080 (0.845, 1.379)	1.224 (0.847, 1.768)	0.982 (0.706, 1.365)
Observations	157,275	61,860	95,415
Deaths	3,811	1,011	2,800
AIC	53,217.18	13,004.94	40,227.08
LR Test (df = 12)	43.002***	16.877	35.279***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 7: Mortality by blood/blood-forming organs related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.062 (0.728, 1.549)	1.232 (0.633, 2.400)	1.044 (0.654, 1.665)
28 - 32	0.955 (0.724, 1.260)	0.584 (0.317, 1.077)	1.122 (0.815, 1.545)
43 - 46	0.954 (0.726, 1.255)	1.044 (0.707, 1.540)	0.878 (0.595, 1.296)
47 - 48	0.800 (0.500, 1.280)	0.880 (0.482, 1.607)	0.731 (0.334, 1.600)
≥49	0.961 (0.564, 1.637)	0.944 (0.473, 1.887)	1.122 (0.478, 2.632)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	0.957 (0.618, 1.482)	1.163 (0.555, 2.439)	0.860 (0.501, 1.478)
21 - 22	1.046 (0.801, 1.366)	1.204 (0.786, 1.845)	0.954 (0.678, 1.344)
29 - 33	0.811 (0.625, 1.054)	0.805 (0.522, 1.239)	0.831 (0.598, 1.154)
34 - 37	0.947 (0.628, 1.430)	1.241 (0.685, 2.248)	0.756 (0.421, 1.356)
≥38	1.115 (0.701, 1.775)	0.786 (0.356, 1.736)	1.395 (0.784, 2.479)
Total children	0.994 (0.943, 1.048)	0.974 (0.902, 1.050)	1.021 (0.946, 1.102)
% children died before age 18	0.879 (0.461, 1.674)	0.288 (0.100, 0.833)*	2.128 (0.994, 4.556)
Observations	157,275	61,860	95,415
Deaths	514	196	318
AIC	7,172.407	2,555.974	4,620.259
LR Test (df = 12)	5.922	16.179	9.917

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 8: Mortality by mental/psychoneurotic/personality related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.041 (0.876, 1.237)	0.780 (0.394, 1.544)	1.071 (0.896, 1.281)
28 - 32	0.959 (0.848, 1.084)	1.295 (0.846, 1.981)	0.941 (0.828, 1.070)
43 - 46	0.913 (0.787, 1.059)	1.100 (0.711, 1.702)	0.898 (0.766, 1.052)
47 - 48	0.868 (0.649, 1.160)	1.618 (0.880, 2.975)	0.758 (0.541, 1.064)
≥49	1.110 (0.794, 1.554)	1.513 (0.718, 3.189)	1.080 (0.740, 1.578)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.093 (0.900, 1.328)	1.306 (0.649, 2.627)	1.082 (0.883, 1.325)
21 - 22	0.972 (0.853, 1.108)	0.538 (0.300, 0.966)*	1.014 (0.886, 1.160)
29 - 33	0.902 (0.800, 1.018)	0.641 (0.427, 0.964)*	0.932 (0.822, 1.058)
34 - 37	1.048 (0.863, 1.272)	0.479 (0.222, 1.032)	1.125 (0.920, 1.375)
≥38	0.995 (0.780, 1.268)	0.506 (0.228, 1.121)	1.073 (0.832, 1.384)
Total children	0.962 (0.935, 0.991)*	0.902 (0.829, 0.982)*	0.971 (0.941, 1.002)
% children died before age 18	1.011 (0.711, 1.439)	1.055 (0.451, 2.465)	1.012 (0.687, 1.489)
Observations	157,275	61,860	95,415
Deaths	2,285	194	2,091
AIC	29,919.96	2,253.171	27,670.26
LR Test (df = 12)	25.239*	22.609*	23.163*

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 9: Mortality by nervous system/sense organs related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.942 (0.833, 1.067)	0.997 (0.792, 1.254)	0.950 (0.818, 1.103)
28 - 32	1.005 (0.925, 1.093)	0.952 (0.811, 1.117)	1.041 (0.943, 1.150)
43 - 46	1.014 (0.930, 1.105)	0.981 (0.864, 1.113)	1.045 (0.928, 1.176)
47 - 48	0.923 (0.795, 1.071)	0.904 (0.742, 1.100)	0.963 (0.762, 1.216)
≥49	0.808 (0.665, 0.983)*	0.732 (0.566, 0.948)*	0.982 (0.725, 1.330)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.056 (0.924, 1.206)	0.994 (0.769, 1.285)	1.079 (0.922, 1.261)
21 - 22	1.051 (0.965, 1.144)	1.125 (0.975, 1.298)	1.013 (0.911, 1.126)
29 - 33	1.006 (0.930, 1.087)	0.907 (0.797, 1.032)	1.072 (0.973, 1.181)
34 - 37	1.074 (0.946, 1.219)	1.167 (0.959, 1.420)	1.013 (0.857, 1.197)
≥38	0.978 (0.834, 1.147)	0.988 (0.774, 1.261)	0.963 (0.779, 1.189)
Total children	0.998 (0.981, 1.015)	0.986 (0.962, 1.010)	1.011 (0.987, 1.035)
% children died before age 18	1.273 (1.052, 1.540)*	1.438 (1.122, 1.843)**	1.086 (0.806, 1.463)
Observations	157,275	61,860	95,415
Deaths	5,258	1,942	3,316
AIC	71,290.64	24,565.98	46,727.5
LR Test (df = 12)	17.353	30.257**	8.256

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 10: Mortality by circulatory system related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.971 (0.937, 1.007)	0.973 (0.915, 1.035)	0.981 (0.938, 1.026)
28 - 32	1.013 (0.988, 1.039)	1.021 (0.979, 1.065)	1.016 (0.985, 1.049)
43 - 46	1.001 (0.977, 1.027)	0.987 (0.954, 1.022)	1.013 (0.977, 1.051)
47 - 48	0.972 (0.932, 1.012)	0.940 (0.892, 0.991)*	1.029 (0.962, 1.100)
≥49	0.979 (0.931, 1.029)	0.983 (0.924, 1.047)	0.959 (0.878, 1.049)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.227 (1.181, 1.274)***	1.156 (1.086, 1.232)***	1.268 (1.210, 1.329)***
21 - 22	1.115 (1.088, 1.143)***	1.084 (1.043, 1.126)***	1.139 (1.103, 1.177)***
29 - 33	0.956 (0.934, 0.978)***	0.946 (0.913, 0.979)**	0.965 (0.936, 0.995)*
34 - 37	0.963 (0.928, 1.000)	0.933 (0.881, 0.989)*	0.991 (0.943, 1.042)
≥38	0.951 (0.909, 0.995)*	0.914 (0.855, 0.978)**	0.988 (0.930, 1.050)
Total children	0.991 (0.986, 0.996)***	0.988 (0.982, 0.995)***	0.997 (0.990, 1.005)
% children died before age 18	1.211 (1.147, 1.278)***	1.258 (1.173, 1.350)***	1.150 (1.056, 1.251)**
Observations	157,275	61,860	95,415
Deaths	60,735	26,443	34,292
AIC	830,606.6	335,963.9	494,637.1
LR Test (df = 12)	282.543***	128.473***	183.660***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 11: Mortality by respiratory system related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.019 (0.944, 1.101)	1.102 (0.942, 1.288)	0.988 (0.903, 1.081)
28 - 32	1.052 (0.997, 1.111)	1.119 (1.006, 1.244)*	1.030 (0.967, 1.097)
43 - 46	1.018 (0.962, 1.079)	0.978 (0.895, 1.070)	1.037 (0.962, 1.118)
47 - 48	1.142 (1.042, 1.252)**	1.033 (0.907, 1.178)	1.232 (1.081, 1.405)**
≥49	1.162 (1.039, 1.299)**	1.085 (0.933, 1.262)	1.190 (1.002, 1.414)*
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.385 (1.279, 1.499)***	1.113 (0.944, 1.311)	1.492 (1.362, 1.635)***
21 - 22	1.197 (1.134, 1.264)***	1.056 (0.956, 1.166)	1.263 (1.184, 1.348)***
29 - 33	1.007 (0.957, 1.060)	1.042 (0.954, 1.138)	0.993 (0.933, 1.057)
34 - 37	1.050 (0.966, 1.140)	1.087 (0.941, 1.256)	1.039 (0.939, 1.149)
≥38	1.094 (0.993, 1.205)	1.196 (1.018, 1.406)*	1.052 (0.931, 1.189)
Total children	0.982 (0.971, 0.993)**	0.994 (0.978, 1.011)	0.977 (0.962, 0.992)**
% children died before age 18	1.439 (1.277, 1.621)***	1.445 (1.215, 1.718)***	1.427 (1.209, 1.683)***
Observations	157,275	61,860	95,415
Deaths	12,369	4,063	8,306
AIC	170,022	51,250.76	118,774.8
LR Test (df = 12)	154.549***	35.217***	139.707***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 12: Mortality by digestive system related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.025 (0.905, 1.161)	1.027 (0.812, 1.298)	1.004 (0.864, 1.168)
28 - 32	0.955 (0.872, 1.046)	1.012 (0.858, 1.195)	0.921 (0.825, 1.029)
43 - 46	0.994 (0.906, 1.091)	1.049 (0.920, 1.196)	0.945 (0.828, 1.079)
47 - 48	0.993 (0.852, 1.158)	1.022 (0.838, 1.247)	0.967 (0.753, 1.241)
≥49	0.999 (0.829, 1.204)	1.076 (0.855, 1.355)	0.857 (0.607, 1.211)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.334 (1.172, 1.518)***	1.360 (1.088, 1.701)**	1.328 (1.133, 1.557)***
21 - 22	1.104 (1.009, 1.207)*	1.076 (0.929, 1.246)	1.124 (1.003, 1.259)*
29 - 33	0.858 (0.787, 0.936)***	0.809 (0.703, 0.930)**	0.890 (0.797, 0.994)*
34 - 37	0.990 (0.864, 1.133)	1.168 (0.952, 1.434)	0.872 (0.727, 1.047)
≥38	0.991 (0.843, 1.165)	0.971 (0.756, 1.248)	1.009 (0.816, 1.247)
Total children	0.981 (0.964, 0.999)*	0.986 (0.962, 1.011)	0.974 (0.948, 1.000)
% children died before age 18	1.254 (1.031, 1.527)*	1.285 (0.987, 1.674)	1.208 (0.899, 1.623)
Observations	157,275	61,860	95,415
Deaths	4,580	1,802	2,778
AIC	64,540.99	23,819.64	40,733.81
LR Test (df = 12)	52.207***	28.556**	35.185***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 13: Mortality by genito-urinary related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.928 (0.783, 1.100)	1.056 (0.789, 1.414)	0.821 (0.662, 1.018)
28 - 32	1.008 (0.899, 1.130)	1.054 (0.871, 1.274)	0.958 (0.828, 1.109)
43 - 46	1.068 (0.961, 1.187)	0.955 (0.833, 1.096)	1.230 (1.042, 1.451)*
47 - 48	0.950 (0.801, 1.126)	0.822 (0.670, 1.008)	1.136 (0.821, 1.570)
≥49	1.023 (0.838, 1.248)	0.873 (0.691, 1.103)	1.194 (0.789, 1.806)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.222 (1.032, 1.445)*	1.044 (0.799, 1.363)	1.353 (1.088, 1.681)**
21 - 22	1.050 (0.940, 1.174)	0.931 (0.790, 1.098)	1.157 (0.995, 1.345)
29 - 33	1.015 (0.918, 1.122)	1.176 (1.022, 1.354)*	0.878 (0.759, 1.015)
34 - 37	1.045 (0.886, 1.234)	1.213 (0.960, 1.532)	0.909 (0.718, 1.152)
≥38	0.971 (0.794, 1.186)	1.290 (0.989, 1.682)	0.703 (0.514, 0.962)*
Total children	1.003 (0.982, 1.023)	1.032 (1.005, 1.059)*	0.971 (0.937, 1.005)
% children died before age 18	1.135 (0.891, 1.446)	1.099 (0.815, 1.482)	1.174 (0.777, 1.775)
Observations	157,275	61,860	95,415
Deaths	3,129	1,565	1,564
AIC	41,640.33	19,879.16	21,764.42
LR Test (df = 12)	11.748	11.943	20.561

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 14: Mortality by skin/subcutaneous tissue related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.393 (0.157, 0.982)*	0.927 (0.179, 4.798)	0.281 (0.091, 0.861)*
28 - 32	0.738 (0.430, 1.267)	0.504 (0.140, 1.818)	0.804 (0.436, 1.482)
43 - 46	1.055 (0.602, 1.848)	0.261 (0.085, 0.807)*	2.063 (1.085, 3.925)*
47 - 48	0.992 (0.375, 2.627)	0.333 (0.071, 1.573)	2.213 (0.649, 7.549)
≥49	1.415 (0.476, 4.208)	0.780 (0.195, 3.126)	1.283 (0.167, 9.887)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.475 (0.663, 3.280)	1.409 (0.308, 6.450)	1.474 (0.576, 3.774)
21 - 22	0.856 (0.468, 1.566)	0.873 (0.287, 2.652)	0.842 (0.410, 1.730)
29 - 33	0.624 (0.372, 1.049)	1.698 (0.747, 3.855)	0.332 (0.159, 0.694)**
34 - 37	0.772 (0.359, 1.662)	1.374 (0.347, 5.446)	0.605 (0.238, 1.534)
≥38	0.580 (0.219, 1.537)	0.605 (0.066, 5.529)	0.510 (0.170, 1.530)
Total children	0.886 (0.790, 0.994)*	1.023 (0.860, 1.215)	0.812 (0.692, 0.954)*
% children died before age 18	2.037 (0.660, 6.287)	1.170 (0.179, 7.660)	2.998 (0.754, 11.929)
Observations	157,275	61,860	95,415
Deaths	128	41	87
AIC	1,687.519	498.518	1,190.337
LR Test (df = 12)	10.249	12.722	20.193

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 15: Mortality by bones/organs of movement related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.847 (0.596, 1.204)	1.030 (0.453, 2.343)	0.798 (0.538, 1.184)
28 - 32	1.014 (0.803, 1.281)	1.097 (0.624, 1.927)	0.982 (0.757, 1.272)
43 - 46	0.900 (0.685, 1.181)	1.256 (0.804, 1.965)	0.742 (0.520, 1.060)
47 - 48	0.955 (0.602, 1.516)	0.880 (0.414, 1.871)	1.103 (0.615, 1.978)
≥49	1.203 (0.712, 2.031)	1.982 (1.003, 3.918)*	0.590 (0.215, 1.620)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.271 (0.893, 1.810)	1.336 (0.601, 2.969)	1.277 (0.861, 1.896)
21 - 22	1.016 (0.789, 1.309)	0.900 (0.517, 1.567)	1.057 (0.795, 1.406)
29 - 33	1.005 (0.803, 1.258)	0.886 (0.558, 1.407)	1.042 (0.805, 1.348)
34 - 37	0.896 (0.612, 1.313)	1.194 (0.617, 2.311)	0.778 (0.485, 1.248)
≥38	0.899 (0.567, 1.424)	0.730 (0.296, 1.803)	0.978 (0.573, 1.669)
Total children	0.965 (0.916, 1.016)	0.967 (0.886, 1.055)	0.959 (0.897, 1.026)
% children died before age 18	1.788 (1.057, 3.025)*	2.695 (1.231, 5.897)*	1.318 (0.640, 2.714)
Observations	157,275	61,860	95,415
Deaths	617	151	466
AIC	8,494.964	1,946.112	6,559.849
LR Test (df = 12)	10.521	11.880	11.645

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 16: Mortality by congenital malformations related causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.626 (0.720, 3.671)	1.405 (0.320, 6.162)	1.707 (0.637, 4.574)
28 - 32	0.931 (0.491, 1.763)	0.382 (0.078, 1.860)	1.204 (0.592, 2.448)
43 - 46	0.819 (0.393, 1.706)	0.557 (0.116, 2.671)	0.929 (0.405, 2.132)
47 - 48	1.213 (0.403, 3.651)	1.994 (0.375, 10.595)	0.909 (0.202, 4.083)
≥49	0.514 (0.067, 3.965)	-	0.852 (0.107, 6.763)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	0.195 (0.027, 1.437)	-	0.241 (0.032, 1.796)
21 - 22	0.995 (0.527, 1.879)	1.430 (0.442, 4.629)	0.880 (0.413, 1.874)
29 - 33	1.512 (0.871, 2.624)	1.122 (0.354, 3.551)	1.675 (0.894, 3.140)
34 - 37	1.089 (0.396, 3.000)	0.589 (0.065, 5.335)	1.338 (0.427, 4.193)
≥38	0.634 (0.136, 2.951)	0.651 (0.061, 6.923)	0.532 (0.065, 4.379)
Total children	1.013 (0.882, 1.163)	0.854 (0.650, 1.122)	1.090 (0.928, 1.280)
% children died before age 18	2.503 (0.735, 8.526)	3.801 (0.697, 20.718)	1.782 (0.308, 10.304)
Observations	157,275	61,860	95,415
Deaths	90	23	67
AIC	1,364.34	339.38	1,040.209
LR Test (df = 12)	11.899	12.654	7.995

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 17: Mortality by symptoms/senile/ill-defined causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.121 (0.968, 1.298)	1.262 (1.000, 1.593)*	1.044 (0.861, 1.266)
28 - 32	1.122 (1.013, 1.242)*	1.170 (0.993, 1.378)	1.092 (0.956, 1.246)
43 - 46	0.955 (0.862, 1.058)	0.911 (0.796, 1.041)	1.033 (0.882, 1.210)
47 - 48	1.039 (0.888, 1.215)	1.014 (0.840, 1.224)	1.082 (0.803, 1.458)
≥49	0.965 (0.794, 1.174)	0.939 (0.746, 1.182)	1.016 (0.682, 1.512)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.239 (1.060, 1.447)**	1.350 (1.074, 1.698)*	1.164 (0.941, 1.438)
21 - 22	0.996 (0.897, 1.106)	0.986 (0.846, 1.149)	1.007 (0.871, 1.164)
29 - 33	0.996 (0.908, 1.093)	0.982 (0.859, 1.122)	1.007 (0.885, 1.146)
34 - 37	0.969 (0.828, 1.133)	0.890 (0.707, 1.121)	1.042 (0.841, 1.291)
≥38	1.218 (1.024, 1.448)*	1.314 (1.039, 1.662)*	1.099 (0.847, 1.425)
Total children	0.983 (0.964, 1.003)	0.988 (0.964, 1.013)	0.975 (0.944, 1.008)
% children died before age 18	1.445 (1.171, 1.783)***	1.514 (1.172, 1.954)**	1.319 (0.911, 1.912)
Observations	157,275	61,860	95,415
Deaths	3,698	1,804	1,894
AIC	47,574.6	22,170.35	25,419.68
LR Test (df = 12)	48.059***	43.493***	13.129

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 18: Mortality by external causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.177 (1.023, 1.353)*	1.191 (0.953, 1.489)	1.185 (0.985, 1.424)
28 - 32	1.093 (0.988, 1.208)	1.031 (0.877, 1.210)	1.141 (1.001, 1.301)*
43 - 46	1.007 (0.912, 1.111)	0.973 (0.856, 1.106)	1.054 (0.902, 1.232)
47 - 48	0.997 (0.852, 1.167)	0.940 (0.776, 1.138)	1.143 (0.864, 1.514)
≥49	1.102 (0.918, 1.323)	1.141 (0.923, 1.410)	0.909 (0.607, 1.360)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.124 (0.969, 1.304)	1.178 (0.944, 1.470)	1.088 (0.890, 1.329)
21 - 22	1.025 (0.929, 1.132)	0.935 (0.807, 1.082)	1.113 (0.973, 1.273)
29 - 33	0.971 (0.885, 1.065)	0.985 (0.866, 1.120)	0.956 (0.836, 1.092)
34 - 37	1.049 (0.901, 1.220)	0.919 (0.736, 1.147)	1.193 (0.968, 1.469)
≥38	1.009 (0.841, 1.210)	0.964 (0.750, 1.238)	1.063 (0.815, 1.387)
Total children	1.011 (0.993, 1.030)	1.009 (0.985, 1.033)	1.016 (0.985, 1.049)
% children died before age 18	1.418 (1.158, 1.735)***	1.415 (1.101, 1.818)**	1.434 (1.018, 2.019)*
Observations	157,275	61,860	95,415
Deaths	3,834	1,923	1,911
AIC	54,190.32	25,999.48	28,203.45
LR Test (df = 12)	27.970**	19.210	20.156

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 19: Mortality by unknown causes using Cox proportional hazard model not including NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	2.093 (1.994, 2.197)***	1.984 (1.834, 2.147)***	2.007 (1.882, 2.140)***
28 - 32	1.414 (1.361, 1.468)***	1.297 (1.219, 1.379)***	1.425 (1.357, 1.497)***
43 - 46	0.877 (0.842, 0.913)***	0.909 (0.864, 0.957)***	0.809 (0.755, 0.868)***
47 - 48	0.871 (0.817, 0.928)***	0.856 (0.793, 0.924)***	0.896 (0.789, 1.017)
≥49	0.857 (0.792, 0.926)***	0.861 (0.788, 0.942)**	0.782 (0.655, 0.933)**
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.152 (1.089, 1.220)***	1.208 (1.107, 1.319)***	1.126 (1.045, 1.214)**
21 - 22	1.089 (1.049, 1.131)***	1.122 (1.063, 1.184)***	1.065 (1.011, 1.122)*
29 - 33	0.983 (0.947, 1.019)	0.983 (0.933, 1.035)	0.975 (0.926, 1.026)
34 - 37	1.087 (1.024, 1.154)**	1.153 (1.060, 1.253)***	0.994 (0.911, 1.084)
≥38	1.099 (1.023, 1.180)*	1.211 (1.100, 1.333)***	0.945 (0.848, 1.054)
Total children	1.002 (0.995, 1.010)	1.014 (1.004, 1.024)**	0.966 (0.953, 0.979)***
% children died before age 18	0.947 (0.871, 1.029)	0.834 (0.748, 0.928)***	1.135 (0.995, 1.295)
Observations	157,275	61,860	95,415
Deaths	25,583	12,616	12,967
AIC	346,971.2	161,291	185,561.8
LR Test (df = 12)	1,748.897***	505.812***	1,385.460***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 20: All-cause mortality using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.174 (1.149, 1.200)***	1.171 (1.126, 1.218)***	1.167 (1.136, 1.199)***
28 - 32	1.085 (1.068, 1.102)***	1.076 (1.046, 1.106)***	1.086 (1.065, 1.107)***
43 - 46	0.977 (0.961, 0.993)**	0.966 (0.944, 0.988)**	0.980 (0.957, 1.003)
47 - 48	0.963 (0.938, 0.989)**	0.934 (0.902, 0.966)***	1.005 (0.962, 1.049)
≥49	0.971 (0.940, 1.003)	0.966 (0.927, 1.006)	0.957 (0.904, 1.013)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.193 (1.165, 1.222)***	1.155 (1.108, 1.203)***	1.201 (1.167, 1.237)***
21 - 22	1.091 (1.074, 1.108)***	1.064 (1.038, 1.091)***	1.098 (1.076, 1.120)***
29 - 33	0.976 (0.961, 0.990)**	0.962 (0.940, 0.985)**	0.981 (0.963, 1.000)
34 - 37	1.013 (0.989, 1.038)	1.005 (0.967, 1.043)	1.012 (0.980, 1.044)
≥38	1.012 (0.983, 1.042)	1.015 (0.971, 1.060)	0.994 (0.957, 1.034)
Total children	0.993 (0.990, 0.996)***	0.997 (0.993, 1.001)	0.986 (0.982, 0.991)***
% children died before age 18	1.160 (1.120, 1.202)***	1.174 (1.120, 1.229)***	1.155 (1.095, 1.218)***
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.975 (0.957, 0.994)**	0.975 (0.945, 1.006)	0.951 (0.928, 0.974)***
66 - 77	0.901 (0.883, 0.919)***	0.882 (0.853, 0.911)***	0.887 (0.866, 0.910)***
78 - 99	0.841 (0.825, 0.858)***	0.802 (0.775, 0.830)***	0.822 (0.802, 0.842)***
Farmers	0.785 (0.769, 0.801)***	0.832 (0.809, 0.855)***	0.791 (0.768, 0.815)***
Missing	0.631 (0.620, 0.643)***	0.882 (0.858, 0.906)***	0.477 (0.466, 0.489)***
Observations	157,275	61,860	95,415
Deaths	149,740	60,977	88,763
AIC	2,045,605	776,840.9	1,266,598
LR Test (df = 17)	5,004.367***	672.671***	6,532.606***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 21: Mortality by infection/parasite related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.019 (0.792, 1.310)	1.126 (0.716, 1.770)	0.957 (0.701, 1.306)
28 - 32	0.953 (0.800, 1.134)	1.166 (0.875, 1.553)	0.847 (0.679, 1.057)
43 - 46	1.019 (0.865, 1.200)	1.060 (0.852, 1.319)	0.953 (0.739, 1.229)
47 - 48	0.788 (0.591, 1.050)	0.778 (0.549, 1.103)	0.764 (0.448, 1.303)
≥49	1.070 (0.786, 1.456)	1.006 (0.694, 1.458)	1.122 (0.617, 2.039)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.213 (0.950, 1.548)	1.047 (0.693, 1.581)	1.338 (0.987, 1.814)
21 - 22	0.810 (0.675, 0.973)*	0.616 (0.453, 0.838)**	0.969 (0.770, 1.220)
29 - 33	1.019 (0.874, 1.187)	1.013 (0.808, 1.271)	1.034 (0.840, 1.274)
34 - 37	1.054 (0.819, 1.355)	1.225 (0.860, 1.745)	0.929 (0.647, 1.332)
≥38	1.162 (0.870, 1.554)	1.559 (1.058, 2.297)*	0.830 (0.524, 1.315)
Total children	1.001 (0.969, 1.034)	1.017 (0.974, 1.061)	0.995 (0.945, 1.047)
% children died before age 18	1.438 (1.018, 2.031)*	1.540 (1.008, 2.352)*	1.252 (0.691, 2.272)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	1.125 (0.945, 1.340)	1.430 (1.117, 1.831)**	0.918 (0.719, 1.173)
66 - 77	0.884 (0.733, 1.067)	0.891 (0.671, 1.182)	0.863 (0.669, 1.112)
78 - 99	0.687 (0.565, 0.835)***	0.512 (0.361, 0.726)***	0.745 (0.581, 0.956)*
Farmers	0.678 (0.560, 0.820)***	0.675 (0.527, 0.865)**	0.748 (0.548, 1.022)
Missing	0.149 (0.118, 0.188)***	0.175 (0.123, 0.249)***	0.132 (0.097, 0.182)***
Observations	157,275	61,860	95,415
Deaths	1,339	617	722
AIC	18,250.97	8,117.782	10,130.5
LR Test (df = 17)	520.301***	256.327***	300.668***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 22: Mortality by breast cancer using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.158 (0.179, 7.499)	0.591 (0.045, 7.738)	3.377 (0.200, 56.935)
28 - 32	0.302 (0.035, 2.610)	0.420 (0.043, 4.128)	-
43 - 46	2.358 (0.595, 9.335)	1.128 (0.186, 6.834)	8.165 (0.894, 74.577)
47 - 48	1.838 (0.193, 17.455)	-	23.632 (1.192, 468.381)*
≥49	-	-	-
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	-	-	-
21 - 22	0.388 (0.048, 3.130)	0.815 (0.091, 7.318)	-
29 - 33	0.410 (0.082, 2.037)	0.296 (0.032, 2.741)	0.447 (0.042, 4.713)
34 - 37	-	-	-
≥38	0.989 (0.125, 7.830)	1.579 (0.150, 16.669)	-
Total children	0.832 (0.603, 1.149)	0.763 (0.496, 1.173)	0.929 (0.571, 1.511)
% children died before age 18	4.169 (0.476, 36.528)	2.790 (0.264, 29.531)	13.384 (0.108, 1, 656.212)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.584 (0.129, 2.650)	0.458 (0.082, 2.547)	-
66 - 77	0.454 (0.082, 2.510)	0.500 (0.089, 2.793)	-
78 - 99	0.768 (0.186, 3.174)	-	-
Farmers	-	-	-
Missing	0.183 (0.037, 0.914)*	0.199 (0.036, 1.101)	-
Observations	157,275	61,860	95,415
Deaths	16	10	6
AIC	231.309	145.634	96.45
LR Test (df = 17)	26.089	24.443	24.872

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 23: Mortality by cancers other than breast using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.062 (1.002, 1.125)*	1.064 (0.940, 1.203)	1.049 (0.981, 1.121)
28 - 32	1.031 (0.990, 1.074)	1.043 (0.959, 1.133)	1.023 (0.977, 1.072)
43 - 46	1.003 (0.960, 1.048)	0.962 (0.897, 1.033)	1.028 (0.972, 1.087)
47 - 48	0.998 (0.926, 1.075)	0.990 (0.891, 1.099)	0.986 (0.885, 1.099)
≥49	1.053 (0.963, 1.153)	1.009 (0.892, 1.142)	1.094 (0.955, 1.254)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.107 (1.041, 1.178)**	1.040 (0.913, 1.184)	1.132 (1.055, 1.215)***
21 - 22	1.063 (1.020, 1.108)**	1.019 (0.942, 1.101)	1.082 (1.031, 1.136)**
29 - 33	1.006 (0.968, 1.046)	0.967 (0.902, 1.036)	1.021 (0.975, 1.069)
34 - 37	1.006 (0.944, 1.072)	0.972 (0.866, 1.092)	1.013 (0.939, 1.093)
≥38	0.999 (0.926, 1.079)	0.965 (0.843, 1.104)	1.007 (0.918, 1.106)
Total children	0.981 (0.973, 0.990)***	0.987 (0.974, 1.001)	0.974 (0.963, 0.985)***
% children died before age 18	1.126 (1.022, 1.240)*	1.154 (1.002, 1.331)*	1.107 (0.970, 1.264)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	1.017 (0.971, 1.065)	1.034 (0.949, 1.127)	1.005 (0.951, 1.062)
66 - 77	0.969 (0.924, 1.016)	0.947 (0.866, 1.036)	0.970 (0.916, 1.026)
78 - 99	0.907 (0.865, 0.951)***	0.847 (0.771, 0.930)***	0.912 (0.863, 0.964)**
Farmers	0.856 (0.814, 0.901)***	0.907 (0.839, 0.980)*	0.813 (0.757, 0.872)***
Missing	0.202 (0.190, 0.214)***	0.265 (0.240, 0.293)***	0.181 (0.169, 0.194)***
Observations	157,275	61,860	95,415
Deaths	21,754	6,576	15,178
AIC	304,803.4	85,531.42	219,230.9
LR Test (df = 17)	6,134.178***	1,295.331***	4,913.935***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 24: Mortality by aller/endocrine/metabolic/nutrition related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.985 (0.852, 1.140)	0.995 (0.712, 1.390)	0.975 (0.827, 1.149)
28 - 32	1.121 (1.019, 1.233)*	1.130 (0.914, 1.397)	1.116 (1.002, 1.242)*
43 - 46	0.927 (0.835, 1.030)	0.892 (0.745, 1.068)	0.955 (0.839, 1.086)
47 - 48	0.935 (0.783, 1.117)	0.992 (0.766, 1.284)	0.891 (0.692, 1.148)
≥49	0.783 (0.618, 0.992)*	0.961 (0.704, 1.313)	0.583 (0.392, 0.868)**
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.190 (1.034, 1.370)*	1.117 (0.814, 1.534)	1.204 (1.029, 1.408)*
21 - 22	1.043 (0.946, 1.151)	1.141 (0.944, 1.380)	1.008 (0.899, 1.131)
29 - 33	0.976 (0.889, 1.072)	0.989 (0.827, 1.184)	0.966 (0.865, 1.078)
34 - 37	1.083 (0.928, 1.264)	0.983 (0.722, 1.338)	1.110 (0.928, 1.328)
≥38	1.149 (0.954, 1.385)	1.080 (0.762, 1.531)	1.166 (0.935, 1.454)
Total children	1.033 (1.013, 1.054)**	1.033 (0.999, 1.068)	1.030 (1.004, 1.057)*
% children died before age 18	1.023 (0.799, 1.309)	1.176 (0.811, 1.705)	0.930 (0.667, 1.295)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.891 (0.797, 0.997)*	0.916 (0.727, 1.153)	0.872 (0.767, 0.991)*
66 - 77	0.947 (0.846, 1.060)	1.069 (0.852, 1.342)	0.902 (0.792, 1.028)
78 - 99	0.896 (0.802, 1.000)	0.890 (0.698, 1.134)	0.871 (0.768, 0.987)*
Farmers	0.845 (0.749, 0.955)**	0.921 (0.752, 1.127)	0.839 (0.716, 0.983)*
Missing	0.165 (0.143, 0.189)***	0.341 (0.266, 0.436)***	0.127 (0.108, 0.150)***
Observations	157,275	61,860	95,415
Deaths	3,811	1,011	2,800
AIC	51,942.75	12,874.39	39,040.42
LR Test (df = 17)	1,327.433***	157.433***	1,231.945***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 25: Mortality by blood/blood-forming organs related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.166 (0.799, 1.702)	1.348 (0.690, 2.632)	1.145 (0.717, 1.827)
28 - 32	0.990 (0.750, 1.305)	0.613 (0.332, 1.130)	1.161 (0.843, 1.599)
43 - 46	0.948 (0.721, 1.246)	1.045 (0.707, 1.542)	0.861 (0.583, 1.271)
47 - 48	0.792 (0.495, 1.268)	0.866 (0.473, 1.582)	0.733 (0.335, 1.603)
≥49	0.945 (0.554, 1.612)	0.923 (0.461, 1.847)	1.102 (0.469, 2.585)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	0.925 (0.597, 1.433)	1.170 (0.558, 2.453)	0.811 (0.471, 1.397)
21 - 22	1.032 (0.790, 1.349)	1.198 (0.782, 1.836)	0.936 (0.664, 1.321)
29 - 33	0.814 (0.626, 1.058)	0.801 (0.520, 1.234)	0.828 (0.596, 1.152)
34 - 37	0.968 (0.641, 1.462)	1.275 (0.703, 2.311)	0.766 (0.427, 1.375)
≥38	1.138 (0.714, 1.812)	0.809 (0.365, 1.792)	1.399 (0.787, 2.487)
Total children	0.994 (0.942, 1.048)	0.966 (0.894, 1.044)	1.023 (0.947, 1.105)
% children died before age 18	0.834 (0.436, 1.596)	0.269 (0.092, 0.782)*	2.067 (0.963, 4.433)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.828 (0.603, 1.137)	0.607 (0.344, 1.070)	0.949 (0.639, 1.409)
66 - 77	1.026 (0.752, 1.399)	0.850 (0.502, 1.441)	1.126 (0.761, 1.666)
78 - 99	0.895 (0.655, 1.223)	0.590 (0.321, 1.086)	1.020 (0.695, 1.499)
Farmers	0.982 (0.720, 1.339)	1.050 (0.686, 1.607)	0.778 (0.475, 1.275)
Missing	0.242 (0.169, 0.349)***	0.298 (0.173, 0.514)***	0.215 (0.132, 0.348)***
Observations	157,275	61,860	95,415
Deaths	514	196	318
AIC	7,066.721	2,527.06	4,542.068
LR Test (df = 17)	121.608***	55.093***	98.108***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 26: Mortality by mental/psychoneurotic/personality related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.137 (0.957, 1.351)	0.896 (0.451, 1.780)	1.163 (0.972, 1.391)
28 - 32	1.000 (0.884, 1.130)	1.285 (0.838, 1.968)	0.984 (0.866, 1.119)
43 - 46	0.896 (0.772, 1.040)	1.101 (0.711, 1.704)	0.880 (0.750, 1.031)
47 - 48	0.872 (0.653, 1.166)	1.649 (0.896, 3.034)	0.761 (0.543, 1.068)
≥49	1.107 (0.791, 1.549)	1.553 (0.735, 3.278)	1.070 (0.733, 1.563)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.022 (0.840, 1.242)	1.280 (0.635, 2.583)	1.007 (0.821, 1.235)
21 - 22	0.946 (0.829, 1.079)	0.544 (0.303, 0.978)*	0.982 (0.858, 1.124)
29 - 33	0.896 (0.795, 1.011)	0.661 (0.440, 0.994)*	0.923 (0.814, 1.047)
34 - 37	1.069 (0.881, 1.297)	0.495 (0.230, 1.066)	1.145 (0.937, 1.399)
≥38	1.005 (0.788, 1.281)	0.533 (0.240, 1.185)	1.077 (0.835, 1.389)
Total children	0.962 (0.934, 0.991)*	0.911 (0.836, 0.992)*	0.970 (0.940, 1.001)
% children died before age 18	0.945 (0.664, 1.345)	1.016 (0.430, 2.401)	0.938 (0.637, 1.382)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.919 (0.793, 1.064)	0.966 (0.592, 1.575)	0.911 (0.781, 1.062)
66 - 77	0.882 (0.759, 1.024)	0.968 (0.591, 1.588)	0.872 (0.745, 1.020)
78 - 99	0.814 (0.705, 0.940)**	0.979 (0.594, 1.614)	0.799 (0.688, 0.930)**
Farmers	0.621 (0.514, 0.750)***	0.573 (0.352, 0.932)*	0.647 (0.527, 0.796)***
Missing	0.158 (0.134, 0.186)***	0.282 (0.159, 0.498)***	0.152 (0.128, 0.180)***
Observations	157,275	61,860	95,415
Deaths	2,285	194	2,091
AIC	28,962.95	2,226.569	26,746.27
LR Test (df = 17)	992.245***	59.211***	957.150***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 27: Mortality by nervous system/sense organs related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.025 (0.905, 1.161)	1.087 (0.864, 1.369)	1.029 (0.886, 1.195)
28 - 32	1.042 (0.959, 1.133)	0.987 (0.841, 1.158)	1.077 (0.975, 1.190)
43 - 46	1.009 (0.926, 1.100)	0.987 (0.870, 1.120)	1.026 (0.912, 1.155)
47 - 48	0.915 (0.789, 1.062)	0.895 (0.735, 1.090)	0.966 (0.765, 1.220)
≥49	0.796 (0.655, 0.968)*	0.722 (0.558, 0.935)*	0.966 (0.713, 1.309)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.020 (0.892, 1.166)	0.995 (0.770, 1.286)	1.017 (0.869, 1.190)
21 - 22	1.043 (0.957, 1.136)	1.135 (0.984, 1.309)	0.989 (0.889, 1.100)
29 - 33	1.005 (0.929, 1.086)	0.921 (0.809, 1.048)	1.058 (0.960, 1.166)
34 - 37	1.101 (0.970, 1.250)	1.220 (1.003, 1.484)*	1.017 (0.861, 1.202)
≥38	1.007 (0.858, 1.180)	1.043 (0.817, 1.332)	0.964 (0.781, 1.192)
Total children	0.994 (0.977, 1.011)	0.983 (0.958, 1.007)	1.006 (0.982, 1.030)
% children died before age 18	1.232 (1.017, 1.492)*	1.408 (1.097, 1.806)**	1.037 (0.769, 1.399)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.975 (0.882, 1.078)	0.988 (0.834, 1.170)	0.955 (0.843, 1.083)
66 - 77	1.022 (0.924, 1.131)	1.075 (0.908, 1.273)	0.982 (0.865, 1.115)
78 - 99	1.046 (0.949, 1.154)	0.977 (0.820, 1.163)	1.035 (0.918, 1.168)
Farmers	0.946 (0.853, 1.049)	0.981 (0.846, 1.139)	0.979 (0.842, 1.137)
Missing	0.217 (0.194, 0.244)***	0.373 (0.313, 0.446)***	0.163 (0.141, 0.189)***
Observations	157,275	61,860	95,415
Deaths	5,258	1,942	3,316
AIC	69,757.54	24,319.79	45,370.33
LR Test (df = 17)	1,560.453***	286.446***	1,375.430***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 28: Mortality by circulatory system related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.069 (1.031, 1.108)***	1.087 (1.021, 1.156)**	1.070 (1.024, 1.119)**
28 - 32	1.050 (1.024, 1.077)***	1.062 (1.018, 1.108)**	1.050 (1.018, 1.083)**
43 - 46	0.991 (0.967, 1.016)	0.990 (0.956, 1.025)	0.990 (0.955, 1.027)
47 - 48	0.960 (0.921, 1.000)	0.933 (0.885, 0.984)*	1.017 (0.952, 1.088)
≥49	0.957 (0.910, 1.006)	0.969 (0.910, 1.031)	0.933 (0.854, 1.020)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.182 (1.138, 1.227)***	1.160 (1.089, 1.235)***	1.189 (1.135, 1.247)***
21 - 22	1.104 (1.077, 1.132)***	1.104 (1.062, 1.147)***	1.101 (1.065, 1.137)***
29 - 33	0.965 (0.943, 0.988)**	0.960 (0.927, 0.994)*	0.969 (0.940, 0.999)*
34 - 37	0.993 (0.956, 1.031)	0.970 (0.915, 1.028)	1.013 (0.963, 1.065)
≥38	0.979 (0.936, 1.024)	0.964 (0.901, 1.031)	0.993 (0.934, 1.055)
Total children	0.989 (0.985, 0.994)***	0.987 (0.980, 0.993)***	0.994 (0.987, 1.002)
% children died before age 18	1.149 (1.088, 1.213)***	1.194 (1.112, 1.281)***	1.096 (1.006, 1.194)*
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.932 (0.907, 0.958)***	0.947 (0.907, 0.988)*	0.916 (0.884, 0.950)***
66 - 77	0.891 (0.866, 0.917)***	0.887 (0.849, 0.928)***	0.887 (0.855, 0.920)***
78 - 99	0.812 (0.790, 0.836)***	0.839 (0.801, 0.879)***	0.790 (0.761, 0.819)***
Farmers	0.838 (0.815, 0.862)***	0.866 (0.833, 0.899)***	0.821 (0.786, 0.858)***
Missing	0.203 (0.196, 0.210)***	0.240 (0.228, 0.252)***	0.179 (0.171, 0.188)***
Observations	157,275	61,860	95,415
Deaths	60,735	26,443	34,292
AIC	815,452	330,484.3	484,897.8
LR Test (df = 17)	15,447.170***	5,618.017***	9,933.019***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 29: Mortality by respiratory system related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.108 (1.026, 1.197)**	1.220 (1.043, 1.427)*	1.066 (0.975, 1.166)
28 - 32	1.084 (1.027, 1.144)**	1.147 (1.031, 1.276)*	1.060 (0.995, 1.129)
43 - 46	0.999 (0.944, 1.058)	0.976 (0.892, 1.067)	1.006 (0.934, 1.085)
47 - 48	1.119 (1.021, 1.227)*	1.020 (0.896, 1.163)	1.208 (1.059, 1.377)**
≥49	1.125 (1.006, 1.259)*	1.060 (0.912, 1.234)	1.152 (0.969, 1.368)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.292 (1.193, 1.400)***	1.108 (0.940, 1.305)	1.357 (1.239, 1.488)***
21 - 22	1.155 (1.094, 1.220)***	1.064 (0.963, 1.176)	1.192 (1.117, 1.273)***
29 - 33	1.024 (0.973, 1.078)	1.065 (0.975, 1.163)	1.006 (0.944, 1.071)
34 - 37	1.085 (0.999, 1.179)	1.129 (0.977, 1.305)	1.066 (0.963, 1.179)
≥38	1.114 (1.011, 1.228)*	1.246 (1.060, 1.465)**	1.051 (0.930, 1.188)
Total children	0.981 (0.970, 0.992)***	0.993 (0.977, 1.011)	0.974 (0.959, 0.990)***
% children died before age 18	1.348 (1.194, 1.521)***	1.368 (1.148, 1.629)***	1.333 (1.128, 1.575)***
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	1.062 (1.003, 1.124)*	1.110 (1.002, 1.230)*	1.034 (0.965, 1.107)
66 - 77	0.761 (0.715, 0.810)***	0.774 (0.691, 0.867)***	0.748 (0.694, 0.806)***
78 - 99	0.617 (0.579, 0.657)***	0.594 (0.524, 0.673)***	0.613 (0.569, 0.661)***
Farmers	0.713 (0.669, 0.761)***	0.755 (0.685, 0.831)***	0.696 (0.636, 0.762)***
Missing	0.166 (0.154, 0.179)***	0.239 (0.211, 0.271)***	0.140 (0.127, 0.153)***
Observations	157,275	61,860	95,415
Deaths	12,369	4,063	8,306
AIC	166,057.4	50,361.97	115,659.9
LR Test (df = 17)	4,129.098***	934.008***	3,264.603***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 30: Mortality by digestive system related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.122 (0.990, 1.271)	1.152 (0.911, 1.457)	1.085 (0.933, 1.262)
28 - 32	0.986 (0.900, 1.080)	1.047 (0.888, 1.236)	0.948 (0.849, 1.059)
43 - 46	0.980 (0.894, 1.075)	1.045 (0.916, 1.191)	0.924 (0.809, 1.055)
47 - 48	0.977 (0.838, 1.138)	1.008 (0.826, 1.229)	0.952 (0.742, 1.222)
≥49	0.976 (0.810, 1.177)	1.059 (0.841, 1.333)	0.833 (0.589, 1.176)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.279 (1.124, 1.457)***	1.367 (1.093, 1.709)**	1.244 (1.061, 1.459)**
21 - 22	1.088 (0.994, 1.190)	1.095 (0.945, 1.268)	1.085 (0.968, 1.216)
29 - 33	0.864 (0.792, 0.942)***	0.819 (0.712, 0.942)**	0.893 (0.799, 0.997)*
34 - 37	1.014 (0.886, 1.162)	1.210 (0.986, 1.485)	0.886 (0.739, 1.064)
≥38	1.015 (0.863, 1.193)	1.023 (0.796, 1.315)	1.008 (0.815, 1.245)
Total children	0.980 (0.962, 0.998)*	0.986 (0.961, 1.011)	0.970 (0.944, 0.996)*
% children died before age 18	1.185 (0.972, 1.445)	1.204 (0.922, 1.572)	1.154 (0.857, 1.554)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.887 (0.805, 0.978)*	0.885 (0.753, 1.041)	0.880 (0.779, 0.995)*
66 - 77	0.806 (0.728, 0.893)***	0.828 (0.700, 0.980)*	0.789 (0.693, 0.897)***
78 - 99	0.754 (0.681, 0.835)***	0.806 (0.676, 0.961)*	0.726 (0.640, 0.823)***
Farmers	0.795 (0.718, 0.881)***	0.825 (0.716, 0.952)**	0.763 (0.654, 0.891)***
Missing	0.191 (0.169, 0.216)***	0.211 (0.174, 0.257)***	0.180 (0.154, 0.210)***
Observations	157,275	61,860	95,415
Deaths	4,580	1,802	2,778
AIC	63,367.15	23,417.01	39,968.31
LR Test (df = 17)	1,236.044***	441.191***	810.686***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 31: Mortality by genito-urinary related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.015 (0.856, 1.204)	1.170 (0.874, 1.566)	0.888 (0.715, 1.101)
28 - 32	1.049 (0.935, 1.176)	1.104 (0.913, 1.334)	0.990 (0.855, 1.145)
43 - 46	1.062 (0.955, 1.180)	0.960 (0.837, 1.101)	1.205 (1.022, 1.422)*
47 - 48	0.945 (0.797, 1.120)	0.822 (0.670, 1.008)	1.130 (0.818, 1.562)
≥49	1.006 (0.824, 1.228)	0.865 (0.685, 1.093)	1.167 (0.771, 1.766)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.184 (1.001, 1.402)*	1.067 (0.817, 1.393)	1.260 (1.013, 1.567)*
21 - 22	1.041 (0.932, 1.164)	0.949 (0.805, 1.119)	1.116 (0.959, 1.299)
29 - 33	1.016 (0.919, 1.124)	1.183 (1.028, 1.362)*	0.872 (0.754, 1.008)
34 - 37	1.065 (0.902, 1.257)	1.234 (0.976, 1.559)	0.922 (0.728, 1.168)
≥38	0.993 (0.812, 1.214)	1.341 (1.027, 1.750)*	0.701 (0.513, 0.959)*
Total children	1.004 (0.983, 1.025)	1.033 (1.007, 1.061)*	0.967 (0.933, 1.001)
% children died before age 18	1.061 (0.831, 1.354)	1.020 (0.754, 1.379)	1.117 (0.738, 1.692)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.915 (0.808, 1.036)	0.868 (0.726, 1.038)	0.956 (0.803, 1.139)
66 - 77	0.874 (0.769, 0.993)*	0.856 (0.712, 1.028)	0.897 (0.748, 1.075)
78 - 99	0.824 (0.725, 0.936)**	0.753 (0.618, 0.917)**	0.878 (0.738, 1.044)
Farmers	0.843 (0.747, 0.951)**	0.822 (0.707, 0.956)*	0.891 (0.722, 1.100)
Missing	0.185 (0.160, 0.215)***	0.215 (0.174, 0.264)***	0.167 (0.136, 0.206)***
Observations	157,275	61,860	95,415
Deaths	3,129	1,565	1,564
AIC	40,743.58	19,534.02	21,216.01
LR Test (df = 17)	918.501***	367.079***	578.964***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 32: Mortality by skin/subcutaneous tissue related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.425 (0.169, 1.067)	0.975 (0.187, 5.079)	0.305 (0.099, 0.937)*
28 - 32	0.767 (0.446, 1.317)	0.539 (0.150, 1.943)	0.823 (0.446, 1.518)
43 - 46	1.035 (0.591, 1.811)	0.260 (0.084, 0.802)*	2.007 (1.054, 3.821)*
47 - 48	1.024 (0.388, 2.705)	0.335 (0.071, 1.585)	2.238 (0.654, 7.656)
≥49	1.383 (0.463, 4.129)	0.776 (0.193, 3.125)	1.259 (0.163, 9.702)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.385 (0.621, 3.090)	1.408 (0.307, 6.458)	1.317 (0.513, 3.384)
21 - 22	0.823 (0.449, 1.509)	0.874 (0.287, 2.664)	0.774 (0.375, 1.596)
29 - 33	0.633 (0.376, 1.064)	1.722 (0.758, 3.911)	0.338 (0.162, 0.706)**
34 - 37	0.806 (0.374, 1.735)	1.394 (0.351, 5.545)	0.632 (0.249, 1.604)
≥38	0.611 (0.231, 1.617)	0.631 (0.069, 5.744)	0.527 (0.175, 1.585)
Total children	0.887 (0.790, 0.997)*	1.032 (0.866, 1.229)	0.807 (0.686, 0.949)**
% children died before age 18	1.914 (0.616, 5.950)	1.177 (0.178, 7.798)	2.736 (0.683, 10.954)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	1.578 (0.845, 2.949)	1.691 (0.506, 5.658)	1.455 (0.700, 3.023)
66 - 77	1.154 (0.591, 2.252)	1.078 (0.279, 4.170)	1.127 (0.519, 2.448)
78 - 99	0.877 (0.443, 1.738)	1.578 (0.439, 5.673)	0.708 (0.316, 1.584)
Farmers	0.967 (0.481, 1.945)	1.035 (0.326, 3.290)	1.114 (0.449, 2.766)
Missing	0.220 (0.103, 0.472)***	0.661 (0.193, 2.271)	0.117 (0.044, 0.312)***
Observations	157,275	61,860	95,415
Deaths	128	41	87
AIC	1,651.095	504.422	1,149.753
LR Test (df = 17)	56.674***	16.817	70.776***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 33: Mortality by bones/organs of movement related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	0.926 (0.651, 1.317)	1.153 (0.507, 2.625)	0.868 (0.585, 1.288)
28 - 32	1.054 (0.835, 1.331)	1.136 (0.647, 1.995)	1.019 (0.787, 1.321)
43 - 46	0.884 (0.674, 1.160)	1.246 (0.797, 1.949)	0.725 (0.508, 1.035)
47 - 48	0.938 (0.592, 1.488)	0.862 (0.405, 1.834)	1.087 (0.607, 1.946)
≥49	1.161 (0.687, 1.962)	1.901 (0.960, 3.767)	0.580 (0.211, 1.595)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.197 (0.839, 1.707)	1.327 (0.596, 2.951)	1.183 (0.795, 1.759)
21 - 22	0.997 (0.773, 1.286)	0.909 (0.522, 1.583)	1.024 (0.769, 1.364)
29 - 33	1.001 (0.800, 1.254)	0.900 (0.567, 1.428)	1.031 (0.797, 1.334)
34 - 37	0.918 (0.627, 1.344)	1.246 (0.645, 2.408)	0.786 (0.490, 1.261)
≥38	0.899 (0.567, 1.425)	0.758 (0.306, 1.877)	0.953 (0.558, 1.629)
Total children	0.961 (0.911, 1.013)	0.964 (0.882, 1.053)	0.954 (0.892, 1.021)
% children died before age 18	1.703 (1.003, 2.893)*	2.667 (1.210, 5.877)*	1.241 (0.600, 2.568)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.828 (0.635, 1.079)	1.201 (0.674, 2.138)	0.743 (0.552, 1.001)
66 - 77	0.668 (0.502, 0.888)**	0.917 (0.488, 1.722)	0.608 (0.442, 0.836)**
78 - 99	0.793 (0.609, 1.032)	0.920 (0.484, 1.748)	0.739 (0.553, 0.987)*
Farmers	0.770 (0.575, 1.030)	1.029 (0.607, 1.744)	0.710 (0.491, 1.029)
Missing	0.133 (0.095, 0.187)***	0.350 (0.183, 0.669)**	0.099 (0.067, 0.147)***
Observations	157,275	61,860	95,415
Deaths	617	151	466
AIC	8,276.037	1,932.684	6,353.159
LR Test (df = 17)	239.448***	35.308**	228.335***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 34: Mortality by congenital malformations related causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.764 (0.781, 3.984)	1.618 (0.367, 7.135)	1.814 (0.678, 4.856)
28 - 32	0.957 (0.505, 1.812)	0.395 (0.081, 1.920)	1.242 (0.611, 2.522)
43 - 46	0.807 (0.388, 1.682)	0.552 (0.115, 2.653)	0.909 (0.396, 2.083)
47 - 48	1.234 (0.411, 3.703)	2.022 (0.382, 10.715)	0.905 (0.202, 4.059)
≥49	0.516 (0.067, 3.964)	-	0.820 (0.104, 6.486)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	0.189 (0.026, 1.394)	-	0.232 (0.031, 1.730)
21 - 22	0.983 (0.520, 1.860)	1.421 (0.438, 4.608)	0.859 (0.402, 1.834)
29 - 33	1.504 (0.866, 2.613)	1.144 (0.362, 3.619)	1.657 (0.884, 3.106)
34 - 37	1.088 (0.396, 2.992)	0.632 (0.070, 5.723)	1.303 (0.417, 4.069)
≥38	0.631 (0.136, 2.936)	0.690 (0.065, 7.372)	0.511 (0.062, 4.201)
Total children	1.021 (0.888, 1.174)	0.859 (0.651, 1.134)	1.098 (0.935, 1.289)
% children died before age 18	2.449 (0.708, 8.476)	3.731 (0.675, 20.637)	1.740 (0.291, 10.388)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.382 (0.191, 0.764)**	1.124 (0.251, 5.032)	0.276 (0.124, 0.615)**
66 - 77	0.598 (0.318, 1.127)	1.457 (0.346, 6.128)	0.460 (0.225, 0.942)*
78 - 99	0.564 (0.303, 1.048)	1.234 (0.274, 5.554)	0.448 (0.227, 0.886)*
Farmers	0.248 (0.099, 0.622)**	0.751 (0.165, 3.405)	0.132 (0.030, 0.573)**
Missing	0.196 (0.094, 0.409)***	0.389 (0.078, 1.939)	0.161 (0.069, 0.373)***
Observations	157,275	61,860	95,415
Deaths	90	23	67
AIC	1,348.888	344.933	1,024.819
LR Test (df = 17)	37.350**	17.101	33.385*

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 35: Mortality by symptoms/senile/ill-defined causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.220 (1.054, 1.413)**	1.374 (1.088, 1.734)**	1.131 (0.932, 1.372)
28 - 32	1.162 (1.049, 1.287)**	1.209 (1.026, 1.424)*	1.130 (0.989, 1.290)
43 - 46	0.951 (0.858, 1.053)	0.922 (0.806, 1.055)	1.004 (0.857, 1.177)
47 - 48	1.026 (0.877, 1.200)	1.009 (0.836, 1.218)	1.074 (0.796, 1.448)
≥49	0.946 (0.778, 1.150)	0.925 (0.735, 1.164)	0.994 (0.667, 1.480)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.184 (1.013, 1.384)*	1.349 (1.072, 1.696)*	1.077 (0.870, 1.332)
21 - 22	0.981 (0.883, 1.090)	1.006 (0.864, 1.173)	0.963 (0.833, 1.114)
29 - 33	1.003 (0.914, 1.101)	0.994 (0.870, 1.137)	1.006 (0.884, 1.145)
34 - 37	0.993 (0.849, 1.161)	0.905 (0.719, 1.140)	1.069 (0.863, 1.325)
≥38	1.253 (1.053, 1.491)*	1.371 (1.083, 1.735)**	1.104 (0.851, 1.432)
Total children	0.983 (0.964, 1.003)	0.987 (0.962, 1.012)	0.973 (0.941, 1.005)
% children died before age 18	1.340 (1.084, 1.656)**	1.398 (1.080, 1.810)*	1.229 (0.847, 1.783)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.890 (0.798, 0.993)*	0.814 (0.697, 0.950)**	0.986 (0.843, 1.152)
66 - 77	0.789 (0.704, 0.885)***	0.691 (0.586, 0.815)***	0.900 (0.765, 1.058)
78 - 99	0.677 (0.604, 0.760)***	0.568 (0.474, 0.681)***	0.770 (0.657, 0.902)**
Farmers	0.682 (0.610, 0.763)***	0.650 (0.567, 0.746)***	0.716 (0.583, 0.879)**
Missing	0.162 (0.142, 0.184)***	0.175 (0.144, 0.211)***	0.160 (0.134, 0.192)***
Observations	157,275	61,860	95,415
Deaths	3,698	1,804	1,894
AIC	46,350.46	21,707.11	24,652.72
LR Test (df = 17)	1,282.199***	516.736***	790.097***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 36: Mortality by external causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.289 (1.121, 1.483)***	1.346 (1.076, 1.683)**	1.271 (1.058, 1.528)*
28 - 32	1.132 (1.024, 1.252)*	1.075 (0.915, 1.263)	1.174 (1.030, 1.338)*
43 - 46	0.996 (0.902, 1.099)	0.970 (0.853, 1.102)	1.036 (0.887, 1.210)
47 - 48	0.982 (0.839, 1.149)	0.928 (0.766, 1.124)	1.129 (0.853, 1.495)
≥49	1.073 (0.893, 1.289)	1.115 (0.902, 1.379)	0.884 (0.591, 1.323)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.082 (0.932, 1.256)	1.180 (0.945, 1.473)	1.019 (0.834, 1.246)
21 - 22	1.012 (0.916, 1.117)	0.947 (0.818, 1.096)	1.073 (0.937, 1.228)
29 - 33	0.981 (0.894, 1.076)	0.999 (0.878, 1.136)	0.960 (0.840, 1.098)
34 - 37	1.071 (0.921, 1.247)	0.945 (0.757, 1.180)	1.206 (0.979, 1.485)
≥38	1.031 (0.859, 1.238)	1.002 (0.779, 1.288)	1.064 (0.815, 1.388)
Total children	1.008 (0.989, 1.027)	1.006 (0.982, 1.031)	1.010 (0.979, 1.042)
% children died before age 18	1.334 (1.087, 1.636)**	1.318 (1.023, 1.699)*	1.372 (0.971, 1.939)
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	0.952 (0.855, 1.060)	0.941 (0.808, 1.096)	0.973 (0.836, 1.133)
66 - 77	0.838 (0.748, 0.939)**	0.788 (0.668, 0.929)**	0.891 (0.759, 1.045)
78 - 99	0.728 (0.648, 0.818)***	0.701 (0.587, 0.836)***	0.758 (0.647, 0.889)***
Farmers	0.870 (0.781, 0.969)*	0.850 (0.743, 0.974)*	0.888 (0.737, 1.071)
Missing	0.195 (0.171, 0.222)***	0.184 (0.151, 0.223)***	0.206 (0.172, 0.246)***
Observations	157,275	61,860	95,415
Deaths	3,834	1,923	1,911
AIC	53,127.59	25,491.25	27,658.43
LR Test (df = 17)	1,100.701***	537.436***	575.177***

Note:

*p<0.05; **p<0.01; ***p<0.001

Table 37: Mortality by unknown causes using Cox proportional hazard model with NPSES as covariate

	All men	Born Before 1900	Born In/After 1900
Paternal age at last birth			
33 - 42	Ref	Ref	Ref
< 28	1.493 (1.423, 1.567)***	1.361 (1.258, 1.473)***	1.499 (1.406, 1.599)***
28 - 32	1.221 (1.175, 1.268)***	1.111 (1.044, 1.182)***	1.258 (1.197, 1.322)***
43 - 46	0.913 (0.876, 0.951)***	0.907 (0.862, 0.955)***	0.901 (0.840, 0.967)**
47 - 48	0.911 (0.854, 0.971)**	0.887 (0.822, 0.958)**	0.926 (0.815, 1.052)
≥49	0.924 (0.854, 0.999)*	0.912 (0.834, 0.998)*	0.872 (0.730, 1.040)
Paternal age at first birth			
23 - 28	Ref	Ref	Ref
< 21	1.242 (1.173, 1.315)***	1.171 (1.072, 1.279)***	1.297 (1.203, 1.398)***
21 - 22	1.096 (1.056, 1.138)***	1.049 (0.993, 1.107)	1.139 (1.081, 1.200)***
29 - 33	0.953 (0.919, 0.989)*	0.936 (0.888, 0.986)*	0.966 (0.917, 1.017)
34 - 37	0.967 (0.910, 1.027)	1.005 (0.924, 1.094)	0.906 (0.830, 0.988)*
≥38	0.964 (0.897, 1.036)	0.982 (0.893, 1.081)	0.916 (0.821, 1.022)
Total children	1.009 (1.002, 1.017)*	1.017 (1.008, 1.027)***	0.986 (0.973, 0.999)*
% children died before age 18	1.088 (1.003, 1.180)*	0.993 (0.894, 1.103)	1.231 (1.083, 1.399)**
Nam-Powers			
2 - 41	Ref	Ref	Ref
42 - 65	1.162 (1.000, 1.351)*	1.217 (0.956, 1.549)	1.083 (0.893, 1.314)
66 - 77	0.957 (0.816, 1.123)	0.955 (0.737, 1.239)	0.913 (0.745, 1.120)
78 - 99	0.943 (0.805, 1.104)	0.869 (0.662, 1.141)	0.916 (0.752, 1.117)
Farmers	0.526 (0.442, 0.626)***	0.370 (0.284, 0.482)***	0.926 (0.736, 1.166)
Missing	36.754 (32.595, 41.443)***	43.316 (36.018, 52.094)***	31.614 (26.986, 37.036)***
Observations	157,275	61,860	95,415
Deaths	25,583	12,616	12,967
AIC	296,181.9	134,365.2	161,663.7
LR Test (df = 17)	52,548.230***	27,441.630***	25,293.560***

Note:

*p<0.05; **p<0.01; ***p<0.001