

Supplementary table 1. Sociodemographic characteristics of the 14,231 women included in the main analysis, stratified by tertiles of offspring's disposable income

	Mothers of children in the highest tertile of income				Mothers of children in the middle tertile of income				Mothers of children in the lowest tertile of income			
	n	%	n deaths	Person-years	n	%	n deaths	Person-years	n	%	n deaths	Person-years
	4635		1412	33737	4799		1460	34423	4797		1420	34076
Offspring's education level												
>14 years	2142	46	554	16017	1616	34	426	11748	1272	27	306	8982
12-14 years	1586	34	487	11406	1809	38	529	13122	1889	39	526	13594
<12 years	907	20	371	6314	1374	29	505	9553	1636	34	588	11501
Mothers' education level												
Tertiary (>12 years)	1116	24	252	8390	835	17	192	6156	812	17	182	5835
Secondary (10-12 years)	1658	36	470	12166	1780	37	482	12930	1689	35	469	12035
Primary (<10 years)	1861	40	690	13181	2184	46	786	15336	2296	48	769	16205
Mothers' disposable income tertile												
Highest	1731	37	395	13075	1412	29	328	10386	1296	27	282	9107
Middle	1416	31	461	10148	1560	33	488	11201	1531	32	444	11100
Lowest	1488	32	556	10514	1827	38	644	12835	1970	41	694	13869
Partners' education level												
Tertiary (>12 years)	689	15	154	5243	527	11	114	3918	477	10	97	3380
Secondary (10-12 years)	989	21	238	7408	946	20	214	7031	914	19	225	6554
Primary (<10 years)	900	19	279	6636	1187	25	367	8607	1226	26	365	8945
Missing	2057	44	741	14450	2139	45	765	14867	2180	45	733	15197
Year of Diagnosis												
2001	496	11	189	3969	446	9	176	3491	360	8	130	2907
2002	445	10	172	3586	413	9	159	3324	438	9	150	3555
2003	480	10	165	3933	415	9	152	3380	415	9	154	3354
2004	460	10	166	3648	470	10	186	3782	442	9	150	3597
2005	462	10	173	3710	471	10	170	3814	448	9	170	3563
2006	432	9	149	3354	436	9	144	3436	481	10	160	3752
2007	460	10	131	3372	489	10	136	3569	473	10	142	3434
2008	443	10	96	2958	533	11	117	3557	526	11	131	3442
2009	469	10	86	2749	533	11	108	3134	550	11	111	3184
2010	488	11	85	2458	593	12	112	2935	664	14	122	3288
Country of birth												
Sweden	4211	91	1289	30596	4335	90	1315	31163	4238	88	1246	30086
Nordic countries	245	5	70	1789	273	6	84	1910	344	7	108	2484
Europe	139	3	42	1052	134	3	46	968	144	3	41	1009
Outside Europe	40	1	11	300	57	1	15	381	71	1	25	498
Marital status												
Married/cohabiting	2652	57	706	19805	2695	56	713	19817	2687	56	702	19423
Single	828	18	259	5818	940	20	296	6540	1022	21	335	6919
Widowed	1155	25	447	8114	1164	24	451	8065	1088	23	383	7734
Number of children												
1	1114	24	358	8062	1195	25	406	8514	1200	25	405	8401
2	2158	47	625	15762	2120	44	620	15199	2140	45	593	15191
3+	1363	29	429	9913	1484	31	434	10709	1457	30	422	10483
Sex of child												
Males	2723	59	789	19737	2281	48	685	16161	1811	38	594	12922
Females	1912	41	623	14000	2518	52	775	18261	2986	62	826	21153
Proximity of residence between mother and child												
<50km	2931	63	914	21242	3411	71	1061	24387	3592	75	1059	25469
50-150km	671	14	193	4845	601	13	175	4447	561	12	170	4043
>150km	1033	22	305	9713	796	15	229	5766	346	9	140	2324

Supplementary table 2A. Sociodemographic characteristics of the 8,616 women with information available on clinical stage at diagnosis, stratified by offspring's education level

	Mothers of children with >14 years of education				Mothers of children with 12-14 years of education				Mothers of children with <12 years of education			
	n	%	n deaths	Person-years	n	%	n deaths	Person-years	n	%	n deaths	Person-years
	3184		678	21954	3214		814	21820	2218		720	14699
Offspring's disposable income tertile												
Highest	1283	40	279	9022	928	29	246	6296	477	22	167	3164
Middle	1038	33	220	7204	1107	34	284	7553	801	36	250	5348
Lowest	863	27	179	5728	1179	37	284	7972	940	42	303	6186
Mothers' education level												
Tertiary (>12 years)	1207	38	231	8372	519	16	117	3587	143	6	35	987
Secondary (10-12 years)	1134	36	236	7825	1346	42	323	9172	784	35	223	5276
Primary (<10 years)	843	26	211	5757	1349	42	374	9061	1291	58	462	8436
Mothers' disposable income tertile												
Highest	1443	45	280	10046	1067	33	212	7328	524	24	126	3585
Middle	896	28	192	6167	1044	32	283	7130	778	35	275	5090
Lowest	845	27	206	5741	1103	34	319	7362	916	41	319	6024
Partners' education level												
Tertiary (>12 years)	707	22	116	4969	324	10	68	2226	93	4	29	587
Secondary (10-12 years)	732	23	139	5063	715	22	141	4973	348	16	85	2398
Primary (<10 years)	492	15	118	3396	751	23	193	5092	640	29	176	4440
Missing	1253	39	305	8526	1424	44	412	9529	1137	51	430	7274
Year of Diagnosis												
2004	304	10	86	2596	399	12	139	3228	282	13	115	2235
2005	332	10	108	2796	362	11	119	3024	293	13	117	2267
2006	342	11	93	2836	366	11	114	2921	288	13	116	2173
2007	412	13	82	3194	410	13	108	3029	302	14	114	2071
2008	547	17	112	3683	494	15	119	3235	333	15	84	2185
2009	597	19	99	3554	527	16	101	3088	347	16	85	1982
2010	650	20	98	3294	656	20	114	3295	373	17	89	1785
Country of birth												
Sweden	2852	90	610	19653	2879	90	729	19549	1998	90	643	13227
Nordic countries	171	5	35	1174	203	6	53	1371	142	6	46	971
Europe	108	3	19	791	98	3	26	658	54	2	25	351
Outside Europe	53	2	14	337	34	1	6	242	24	1	6	149
Marital status												
Married/cohabiting	1963	62	379	13653	1830	57	421	12557	1097	49	297	7519
Single	605	19	136	4042	677	21	180	4470	589	27	211	3782
Widowed	616	19	163	4259	707	22	213	4793	532	24	212	3397
Number of children												
1	542	17	111	3757	679	21	172	4614	794	36	272	5281
2	1557	49	330	10715	1538	48	377	10458	927	42	278	6159
3+	1085	34	237	7482	997	31	265	6748	497	22	170	3259
Sex of child												
Males	1434	45	316	9870	1477	46	370	10041	1185	53	392	7792
Females	1750	55	362	12085	1737	54	444	11779	1033	47	328	6907
Proximity of residence between mother and child												
<50km	1837	58	382	12552	2369	74	595	16107	1840	83	583	12347
50-150km	556	17	116	3948	369	11	99	2492	186	8	67	1158
>150km	791	25	180	5454	476	15	120	3222	192	9	70	1194
Clinical cancer stage at diagnosis												
1	1892	59	204	13769	1835	57	261	13170	1205	54	252	8624
2	1102	35	342	7396	1164	36	405	7752	844	38	333	5442
3	109	3	61	566	125	4	69	668	95	4	72	428
4	81	3	71	223	90	3	79	229	74	3	63	205

Supplementary table 2B. Sociodemographic characteristics of the 8,616 women with information available on clinical stage at diagnosis, stratified by tertile of offspring's disposable income

	Mothers of children in the highest tertile of income				Mothers of children in the middle tertile of income				Mothers of children in the lowest tertile of income			
	n	%	n deaths	Person-years	n	%	n deaths	Person-years	n	%	n deaths	Person-years
	2688		692	18482	2946		754	20105	2982		766	19886
Offspring's education level												
>14 years	1283	48	279	9022	1038	35	220	7204	863	29	179	5728
12-14 years	928	35	246	6296	1107	38	284	7553	1179	40	284	7972
<12 years	477	18	167	3164	801	27	250	5348	940	32	303	6186
Mothers' education level												
Tertiary (>12 years)	729	27	150	5153	571	19	119	3949	569	19	114	3844
Secondary (10-12 years)	1007	37	242	6927	1156	39	270	8022	1101	37	270	7323
Primary (<10 years)	952	35	300	6402	1219	41	365	8134	1312	44	382	8718
Mothers' disposable income tertile												
Highest	1090	41	229	7658	999	34	206	6991	945	32	183	6310
Middle	814	30	222	5532	934	32	259	6331	970	33	269	6523
Lowest	784	29	241	5292	1013	34	289	6783	1067	36	314	7053
Partners' education level												
Tertiary (>12 years)	428	16	87	3032	347	12	66	2414	349	12	60	2336
Secondary (10-12 years)	584	22	120	4136	606	21	110	4272	605	20	135	4027
Primary (<10 years)	494	18	123	3465	688	23	181	4701	701	24	183	4761
Missing	1182	44	362	7849	1305	44	397	8718	1327	45	388	8762
Year of Diagnosis												
2004	330	12	113	2664	345	12	130	2823	310	10	97	2573
2005	336	13	118	2782	347	12	113	2880	304	10	113	2425
2006	331	12	113	2595	319	11	98	2574	346	12	112	2761
2007	371	14	100	2747	388	13	100	2870	365	12	104	2677
2008	405	15	90	2693	481	16	106	3206	488	16	119	3204
2009	442	16	79	2609	499	17	101	2941	530	18	105	3075
2010	473	18	79	2392	567	19	106	2812	639	21	116	3170
Country of birth												
Sweden	2435	91	636	16690	2644	90	663	18110	2650	89	683	17629
Nordic countries	143	5	30	1006	179	6	52	1188	194	7	52	1323
Europe	82	3	19	590	83	3	30	560	95	3	21	650
Outside Europe	28	1	7	196	40	1	9	248	43	1	10	284
Marital status												
Married/cohabiting	1552	58	350	10944	1651	56	363	11431	1687	57	384	11355
Single	540	20	151	3546	635	22	170	4266	696	23	206	4482
Widowed	596	22	191	3992	660	22	221	4408	599	20	176	4049
Number of children												
1	612	23	155	4216	684	23	189	4706	719	24	211	4729
2	1283	48	329	8806	1351	46	326	9231	1388	47	330	9295
3+	793	30	208	5460	911	31	239	6167	875	29	225	5862
Sex of child												
Males	1644	61	408	11246	1416	48	367	9531	1036	35	303	6927
Females	1044	39	284	7236	1530	52	387	10574	1946	65	463	12959
Proximity of residence between mother and child												
<50km	1718	64	443	11852	2093	71	551	14230	2235	75	566	14924
50-150km	405	15	103	2731	360	12	83	2538	346	12	96	2329
>150km	565	21	146	3900	493	17	120	3337	401	13	104	2633
Clinical cancer stage at diagnosis												
1	1499	56	216	10992	1730	59	246	12525	1703	57	255	12047
2	1018	38	354	6762	1013	34	369	6752	1079	36	357	7076
3	108	4	66	540	120	4	66	629	101	3	70	494
4	63	2	56	189	83	3	73	200	99	3	84	269

Supplementary table 3. Effect modification by mothers' education and disposable income on the additive scale, quantified using the relative excess risk due to interaction^a

Mothers with primary education		Mothers with secondary education		Mothers with tertiary education	
EHR (95% CI) ^b		EHR (95% CI) ^b	RERI (95% CI)	EHR (95% CI) ^b	RERI (95% CI)
Offspring's education level					
>14 years	Reference ^c	1.02 (0.70 to 1.49)		1.29 (0.89 to 1.87)	
12-14 years	1.31 (0.94 to 1.81)	1.16 (0.82 to 1.64)	-0.17 (-1.61 to 1.28)	1.64 (1.10 to 2.44)	0.05 (-0.58 to 0.68)
<12 years	1.85 (1.35 to 2.52)	1.72 (1.23 to 2.40)	-0.16 (-0.71 to 0.40)	1.49 (0.85 to 2.63)	-0.64 (-1.58 to 0.29)
Mothers in highest tertile of income		Mothers in middle tertile of income		Mothers in lowest tertile of income	
EHR (95% CI) ^d		EHR (95% CI) ^d	RERI (95% CI)	EHR (95% CI) ^d	RERI (95% CI)
Offspring's disposable income tertile					
Highest	Reference ^c	1.55 (1.10 to 2.18)		1.69 (1.19 to 2.39)	
Middle	1.19 (0.82 to 1.73)	1.57 (1.12 to 2.19)	-0.17 (-1.84 to 1.50)	1.55 (1.10 to 2.19)	-0.33 (-2.08 to 1.43)
Lowest	1.27 (0.87 to 1.85)	1.37 (0.97 to 1.95)	-0.44 (-1.10 to 0.21)	1.88 (1.35 to 2.61)	-0.08 (-0.69 to 0.53)

^a The relative excess risk due to interaction (RERI) is calculated as the excess hazard ratio (EHR) when both the exposure and potential modifying factor (e.g. offspring with 12-14 years of education and mothers with secondary education) are present minus the EHR if factor A (e.g. offspring with 12-14 years of education) is present and factor B (e.g. mothers with secondary education) is absent minus the EHR when factor A is absent and factor B is present plus 1 (i.e. $RERI = EHR_{A+B+} - EHR_{A+B-} - EHR_{A-B+} + 1$). If 95% confidence intervals (95% CIs) around a RERI estimate do not include zero then effect modification on the additive scale is suggested.

^b Adjusted for mothers' income (tertile), offspring's income (tertile), partners' education level, year of diagnosis, mothers' country of birth, marital status, number of children, sex of child, age of child in year prior to mother's diagnosis, proximity of residence between mother and child.

^c Variables were recoded so the stratum with the lowest risk, when both the exposure and potential modifying factor were considered, was the reference category. All EHR are relative to this reference category. EHRs are the ratios of excess hazard of death accounting for the expected survival in the general population by age, sex, calendar year and education level.

^d Adjusted for mothers' education level, offspring's education level, partners' education level, year of diagnosis, mothers' country of birth, marital status, number of children, sex of child, age of child in year prior to mother's diagnosis, proximity of residence between mother and child.

Supplementary table 4. Effect modification by mothers' education and disposable income on the multiplicative scale, quantified using ratios of relative risks^a

	Mothers with tertiary education	Mothers with secondary education		Mothers with primary education	
	EHR ^b (95% CI) ^c	EHR (95% CI) ^c	RRR (95% CI) ^d	EHR (95% CI) ^c	RRR (95% CI) ^e
Offspring’s education level					
>14 years	Reference	Reference		Reference	
12-14 years	1.36 (0.95 to 1.95)	1.08 (0.78 to 1.50)	0.79 (0.49 to 1.29)	1.38 (0.99 to 1.93)	1.02 (0.62 to 1.66)
<12 years	1.24 (0.68 to 2.27)	1.59 (1.14 to 2.23)	1.28 (0.64 to 2.56)	1.86 (1.34 to 2.58)	1.50 (0.76 to 2.98)
	Mothers in highest tertile of income	Mothers in middle tertile of income		Mothers in lowest tertile of income	
	EHR (95% CI) ^f	EHR (95% CI) ^f	RRR (95% CI) ^g	EHR (95% CI) ^f	RRR (95% CI) ^h
Offspring’s disposable income tertile					
Highest	Reference	Reference		Reference	
Middle	1.27 (0.87 to 1.87)	0.97 (0.74 to 1.28)	0.76 (0.48 to 1.22)	0.93 (0.72 to 1.21)	0.73 (0.46 to 1.16)
Lowest	1.38 (0.92 to 2.05)	0.86 (0.63 to 1.16)	0.62 (0.38 to 1.03)	1.14 (0.88 to 1.46)	0.82 (0.51 to 1.33)

^a If 95% confidence intervals (95% CIs) around a ratio of relative risk (RRR) do not include one then effect modification on the multiplicative scale is suggested.

^b Excess hazard ratios (EHR) are the ratios of excess hazard of death accounting for the expected survival in the general population by age, sex, calendar year and education level.

^c Adjusted for mothers' income (tertile), offspring's income (tertile), partners' education level, year of diagnosis, mothers' country of birth, marital status, number of children, sex of child, age of child in year prior to mother's diagnosis, proximity of residence between mother and child.

^d EHR for each level of offspring's education among mothers with secondary education compared to the EHR for each level of offspring's education among mothers with tertiary education.

^e EHR for each level of offspring's education among mothers with primary education compared to the EHR for each level of offspring's education among mothers with tertiary education.

^f Adjusted for mothers' education level, offspring's education level, partners' education level, year of diagnosis, mothers' country of birth, marital status, number of children, sex of child, age of child in year prior to mother's diagnosis, proximity of residence between mother and child.

^g EHR for each tertile of offspring's disposable income among mothers in the middle tertile of income compared to the EHR for each tertile of offspring's disposable income among mothers in the highest tertile of income.

^h EHR for each tertile of offspring's disposable income among mothers with in the lowest tertile of income compared to the EHR for each tertile of offspring's disposable income among mothers in the highest tertile of income.

Supplementary table 5. Effect modification by clinical stage at diagnosis on the additive scale, quantified using the relative excess risk due to interaction ^a

	Stage 1 HR (95% CI)	Stage 2 HR (95% CI)	RERI (95% CI)	Stage 3 & 4 combined HR (95% CI)	RERI (95% CI)
Offspring's education level					
>14 years	Reference ^b	2.83 (2.38 to 3.37)		9.74 (7.81 to 12.15)	
12-14 years	1.29 (1.07 to 1.55)	3.06 (2.58 to 3.64)	-0.06 (-0.53 to 0.41)	9.68 (7.81 to 12.00)	-0.35 (-2.67 to 1.97)
<12 years	1.77 (1.46 to 2.15)	3.32 (2.76 to 4.00)	-0.54 (-1.09 to 0.01)	11.43 (9.10 to 14.35)	0.91 (-1.72 to 3.55)
Offspring's disposable income tertile					
Highest	Reference ^b	2.39 (2.02 to 2.84)		7.47 (5.97 to 9.34)	
Middle	1.01 (0.84 to 1.21)	2.46 (2.08 to 2.92)	0.06 (-0.34 to 0.46)	7.41 (5.97 to 9.18)	-0.07 (-1.90 to 1.76)
Lowest	1.13 (0.94 to 1.35)	2.43 (2.04 to 2.88)	-0.09 (-0.50 to 0.32)	9.47 (7.66 to 11.69)	1.87 (-0.17 to 3.91)

^a The relative excess risk due to interaction (RERI) is calculated as the hazard ratio (HR) when both the exposure and potential modifying factor (e.g. offspring with 12-14 years of education and stage 2 at diagnosis) are present minus the HR if factor A (e.g. offspring with 12-14 years of education) is present and factor B (e.g. stage 2 at diagnosis) is absent minus the HR when factor A is absent and factor B is present plus 1 (i.e. $RERI = HR_{A+B+} - HR_{A+B-} - HR_{A-B+} + 1$). If 95% confidence intervals (95% CIs) around a RERI estimate do not include zero then effect modification on the additive scale is suggested.

^b Variables were recoded so the stratum with the lowest risk, when both the exposure and potential modifying factor were considered, was the reference category. All HRs are relative to this reference category.

All models adjusted for mothers' income (tertile), mothers' education level, partners' education level, year of diagnosis, mothers' country of birth, marital status, number of children, sex of child, age of child in year prior to mother's diagnosis, proximity of residence between mother and child, mutually adjusted for offspring's disposable income and offspring's education level.

NB. Flexible parametric models did not converge when models included stage at diagnosis. As such, we used Cox regression to estimate HRs and 95% CIs of all-cause mortality, rather than relative survival, for these analyses.

Supplementary table 6. Effect modification by clinical stage at diagnosis on the multiplicative scale, quantified using the ratio of relative risks between clinical stages ^a

	Stage 1 HR (95% CI)	Stage 2 HR (95% CI)	RRR(95% CI) ^b	Stage 3 & 4 combined HR (95% CI)	RRR (95% CI) ^c
Offspring's education level					
>14 years	Reference	Reference		Reference	
12-14 years	1.25 (1.03 to 1.52)	1.09 (0.93 to 1.26)	0.87 (0.68 to 1.12)	0.91 (0.70 to 1.18)	0.73 (0.53 to 1.01)
<12 years	1.71 (1.38 to 2.11)	1.16 (0.97 to 1.39)	0.67 (0.51 to 0.90)	1.00 (0.74 to 1.35)	0.59 (0.41 to 0.85)
Offspring's disposable income tertile					
Highest	Reference	Reference		Reference	
Middle	0.99 (0.82 to 1.19)	1.05 (0.90 to 1.22)	1.06 (0.83 to 1.35)	0.96 (0.74 to 1.23)	0.97 (0.71 to 1.33)
Lowest	1.12 (0.92 to 1.36)	1.02 (0.87 to 1.20)	0.91 (0.71 to 1.17)	1.24 (0.96 to 1.60)	1.11 (0.80 to 1.53)

^a If 95% confidence intervals (95% CIs) around a ratio of relative risk (RRR) do not include 1 then effect modification on the multiplicative scale is suggested.

^b Hazard ratios (HR) for each level of offspring's education among mothers diagnosed with stage 2 disease compared to the HR for each level of offspring's education among mothers diagnosed with stage 1 disease or HR for each tertile of offspring's disposable income among mothers diagnosed with stage 2 disease compared to the HR for each tertile of offspring's disposable income among mothers diagnosed with stage 1 disease.

^c HR for each level of offspring's education among mothers diagnosed with stage 3 or 4 disease compared to the HR for each level of offspring's education among mothers diagnosed with stage 1 disease or HR for each tertile of offspring's disposable income among mothers diagnosed with stage 3 or 4 disease compared to the HR for each tertile of offspring's disposable income among mothers diagnosed with stage 1 disease.

All models adjusted for mothers' income (tertile), mothers' education level, partners' education level, year of diagnosis, mothers' country of birth, marital status, number of children, sex of child, age of child in year prior to mother's diagnosis, proximity of residence between mother and child, mutually adjusted for offspring's disposable income and offspring's education level.

NB. Flexible parametric models did not converge when models included stage at diagnosis. As such, we used Cox regression to estimate HRs and 95% CIs of all-cause mortality, rather than relative survival, for these analyses.

Supplementary table 7. Mediation analysis decomposing the total effect of offspring's education level on mothers' survival into the direct and indirect effects

	Direct effect	Indirect effect via stage
	HR (95% CI)	HR (95% CI)
Offspring's education level		
>14 years	Reference	Reference
12-14 years	1.13 (1.06 to 1.20)	1.01 (0.95 to 1.07)
<12 years	1.35 (1.25 to 1.44)	1.00 (0.94 to 1.06)

Models adjusted for mothers' income (tertile), offspring's income (tertile), mothers' education level, partners' education level, year of diagnosis, mothers' country of birth, marital status, number of children, sex of child, age of child in year prior to mother's diagnosis, proximity of residence between mother and child.

NB. Flexible parametric models did not converge when models included stage at diagnosis. As such, we used Cox regression to estimate hazard ratios (HR) and 95% confidence intervals (95% CI) of all-cause mortality, rather than relative survival, for these analyses.