

Supplementary Table S1. All-cause death, results from Cox regression analyses based on the entire study period and subpopulation (sample delivery 1987–2015).

	Total population (1965–2015), N = 78 284					Subpopulation (1987–2015), N = 59 657							
	N at risk	N deaths	Model 1 ^a			N at risk	N deaths	Model 1 ^a			Model 2 ^b		
HR			95% CI	P-value	HR			95% CI	P-value	HR	95% CI	P-value	
Semen volume (ml)													
0–1	3308	579	1.60	1.44; 1.77	<0.001	2436	232	1.66	1.39; 1.97	<0.001	1.56	1.32; 1.86	<0.001
>1–2	13 829	1865	1.35	1.25; 1.46	<0.001	10 504	704	1.44	1.26; 1.65	<0.001	1.37	1.20; 1.56	<0.001
>2–3	20 986	2258	1.17	1.08; 1.26	<0.001	16 252	786	1.16	1.02; 1.32	0.025	1.12	0.98; 1.28	0.088
>3–4	18 827	1797	1.03	0.96; 1.12	0.41	14 520	637	1.04	0.91; 1.19	0.57	1.02	0.88; 1.16	0.83
>4–5	11 424	1108	1.02	0.94; 1.11	0.64	8653	367	0.96	0.83; 1.13	0.59	0.94	0.81; 1.09	0.42
>5	9818	982	Ref.			7223	328	Ref.			Ref.		
P-trend					<0.001					<0.001			<0.001
Sperm concentration (million/ml)													
Azoospermia	4829	1326	1.19	1.11; 1.28	<0.001	2053	250	1.49	1.29; 1.72	<0.001	1.38	1.20; 1.60	<0.001
>0–5	7253	1018	1.32	1.22; 1.42	<0.001	5426	389	1.55	1.37; 1.75	<0.001	1.48	1.31; 1.68	<0.001
>5–15	7518	772	1.20	1.10; 1.30	<0.001	5967	341	1.34	1.18; 1.52	<0.001	1.29	1.14; 1.47	<0.001
>15–40	16 556	1637	1.12	1.05; 1.19	0.001	12 922	614	1.15	1.03; 1.28	0.011	1.12	1.01; 1.25	0.034
>40–80	20 168	1944	1.08	1.01; 1.15	0.021	15 610	701	1.10	0.99; 1.22	0.073	1.08	0.98; 1.20	0.12
>80	21 960	1903	Ref.			17 679	764	Ref.			Ref.		
P-trend					<0.001					<0.001			<0.001
Total sperm count (million)													
Azoospermia	4819	1325	1.22	1.14; 1.31	<0.001	2045	250	1.52	1.32; 1.74	<0.001	1.41	1.23; 1.62	<0.001
>0–10	6022	926	1.45	1.35; 1.56	<0.001	4460	348	1.66	1.48; 1.88	<0.001	1.58	1.40; 1.78	<0.001
>10–20	2621	306	1.23	1.09; 1.38	<0.001	2032	139	1.46	1.22; 1.74	<0.001	1.40	1.17; 1.67	<0.001
>20–40	4725	547	1.35	1.24; 1.48	<0.001	3745	231	1.38	1.20; 1.59	<0.001	1.32	1.15; 1.53	<0.001
>40–80	8659	921	1.21	1.12; 1.30	<0.001	6706	345	1.21	1.07; 1.37	0.002	1.17	1.04; 1.32	0.010
>80–160	15 061	1513	1.15	1.08; 1.23	<0.001	11 731	566	1.15	1.04; 1.28	0.006	1.13	1.02; 1.25	0.015
>160	36 283	3051	Ref.			28 869	1175	Ref.			Ref.		
P-trend					<0.001					<0.001			<0.001
Motility (ABC, %)													
0–10	660	107	1.44	1.17; 1.77	<0.001	462	41	1.54	1.10; 2.14	0.012	1.48	1.06; 2.07	0.021
11–20	925	134	1.18	0.98; 1.43	0.085	633	45	1.29	0.94; 1.78	0.12	1.24	0.90; 1.71	0.19
21–40	3979	517	1.28	1.13; 1.44	<0.001	2930	163	1.22	1.00; 1.50	0.050	1.17	0.95; 1.43	0.14
41–60	15 865	1671	1.21	1.10; 1.34	<0.001	12 239	565	1.28	1.10; 1.49	0.002	1.26	1.08; 1.47	0.004
61–80	46 269	4071	1.05	0.96; 1.15	0.28	37 257	1707	0.96	0.83; 1.10	0.53	0.95	0.83; 1.09	0.47
80–100	4838	514	Ref.			3620	234	Ref.			Ref.		
P-trend					<0.001					<0.001			<0.001
Total motile count (million)													
Azoospermia	863	256	1.28	1.12; 1.46	<0.001	414	52	1.52	1.15; 2.02	0.004	1.39	1.05; 1.85	0.023
>0–5	5546	732	1.46	1.35; 1.59	<0.001	4258	313	1.70	1.50; 1.93	<0.001	1.61	1.42; 1.83	<0.001
>5–10	2231	268	1.33	1.17; 1.51	<0.001	1707	114	1.44	1.19; 1.75	<0.001	1.38	1.14; 1.68	0.001
>10–40	10 417	1155	1.29	1.20; 1.38	<0.001	8156	447	1.33	1.19; 1.48	<0.001	1.27	1.13; 1.42	<0.001
>40–80	11 548	1179	1.19	1.11; 1.27	<0.001	8992	432	1.19	1.06; 1.33	0.003	1.16	1.03; 1.29	0.01
>80–120	9573	922	1.16	1.08; 1.25	<0.001	7534	359	1.22	1.06; 1.33	0.001	1.19	1.06; 1.34	0.004
>120	33 132	2746	Ref.			26 430	1085	Ref.			Ref.		
P-trend					<0.001					<0.001			<0.001
Morphology (%)													
<5th PCTL	6988	548	1.37	1.22; 1.53	<0.001	5968	168	1.43	1.18; 1.73	<0.001	1.42	1.17; 1.73	<0.001
5–25th PCTL	12 125	860	1.24	1.12; 1.37	<0.001	10 462	303	1.24	1.06; 1.45	0.007	1.24	1.06; 1.45	0.008
25–50th PCTL	18 187	1764	1.13	1.04; 1.23	0.004	14 344	671	1.18	1.04; 1.34	0.012	1.18	1.04; 1.34	0.012
50–75th PCTL	17 018	1861	1.05	0.96; 1.14	0.30	12 823	791	1.05	0.93; 1.19	0.45	1.05	0.93; 1.19	0.42
75–95th PCTL	9717	992	0.94	0.86; 1.03	0.19	7360	444	0.90	0.79; 1.04	0.15	0.91	0.79; 1.04	0.18
>95th PCTL	7835	823	Ref.			6057	391	Ref.			Ref.		
P-trend					<0.001					<0.001			<0.001

Data are presented as hazard ratio (HR) with 95% CI.

^a Basic Model 1: Attained age as the underlying time scale, including strata of period of semen sampling (5-year intervals) and adjusted for period of abstinence.

^b Main Model 2: As Model 1 described above with further adjustment for educational status and any diagnoses prior to baseline.