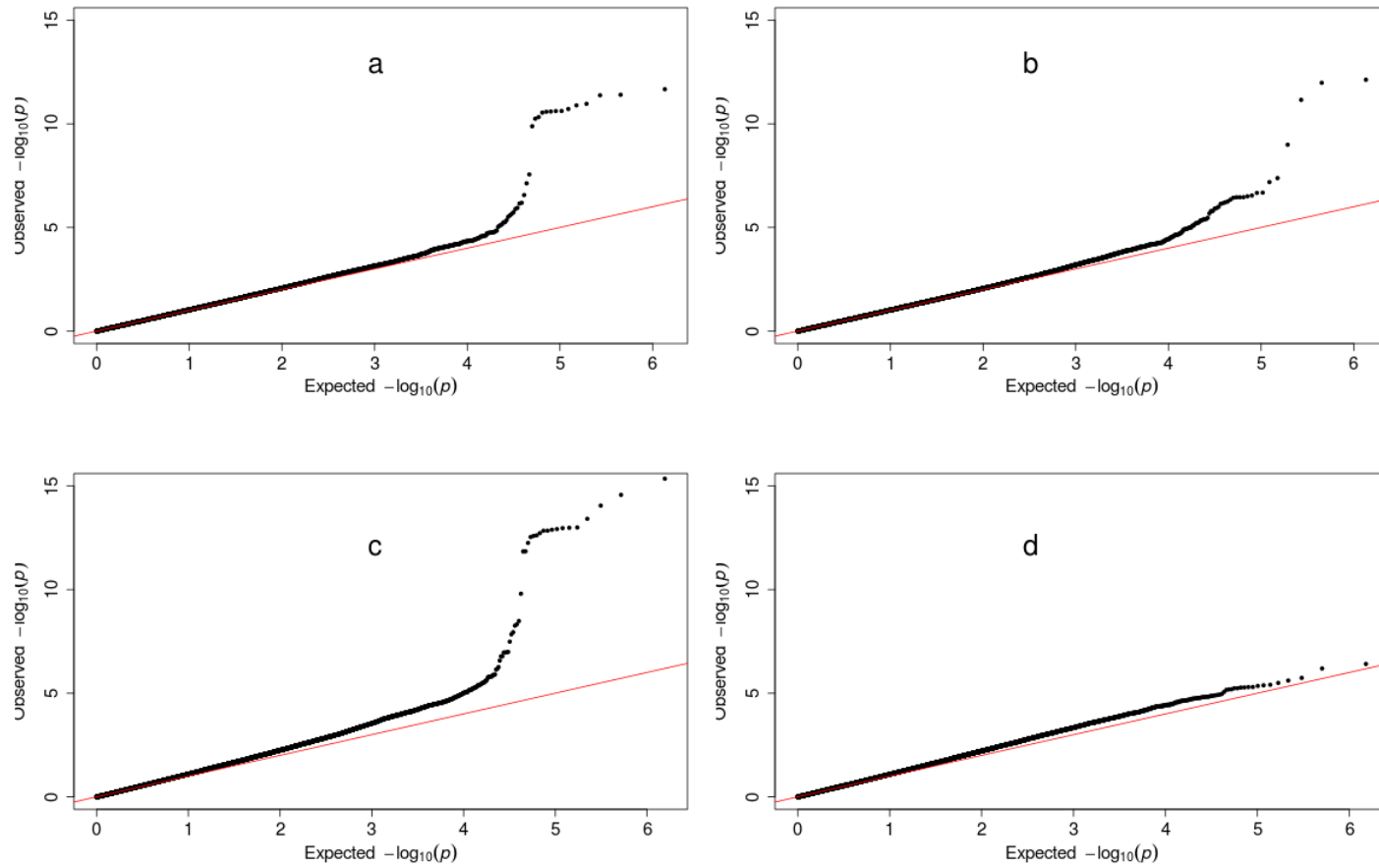


**Supplementary Figure 1. Quantile-quantile plots for genome-wide association.** Q-Q plots are presented from the discovery analysis for (a) paternal lifespan (b) maternal lifespan, (c) meta-analysis of mothers and fathers, and (d) meta-analysis of mothers and fathers conditioned on the most significant *APOE* and *CHRNA3/5* region SNPs.



**Supplementary Table 1. Most significant SNPs in discovery genome-wide association.** All associations below  $P = 10^{-6}$  are shown. Positions use GRCh37, rsid are the dbSNP rs numbers, maf is minor allele frequency in UKB genetically British sample, beta is the estimated effect size on Martingale residuals of the Cox model, SE is the standard error of the effect sizes. The sentinel SNPs are italicised.

Population	Chr	SNP	Position	Eff allele	Alt allele	N	Beta	SE	P	MAF
Fathers	15	rs11858836	78783277	A	G	110627	0.0485	0.00905	8.33E-08	0.317
	15	rs9788721	78802869	C	T	111026	0.0573	0.00897	1.66E-10	0.343
	15	rs8034191	78806023	C	T	111130	0.0609	0.00900	1.33E-11	0.333
	15	<i>rs10519203</i>	<i>78814046</i>	<i>G</i>	<i>A</i>	<i>111025</i>	<i>0.0616</i>	<i>0.00899</i>	<i>7.50E-12</i>	<i>0.337</i>
	15	rs931794	78826180	G	A	111029	0.0606	0.00899	1.56E-11	0.337
	15	rs55853698	78857939	G	T	111010	0.0593	0.00900	4.45E-11	0.331
	15	rs55781567	78857986	G	C	110974	0.0596	0.00900	3.69E-11	0.335
	15	rs17486278	78867482	C	A	111113	0.0588	0.00903	7.13E-11	0.332
	15	rs72740964	78868636	A	G	110237	0.0569	0.00909	3.85E-10	0.326
	15	rs7180002	78873993	T	A	110759	0.0586	0.00905	9.24E-11	0.328
	15	rs951266	78878541	A	G	110991	0.0585	0.00903	9.44E-11	0.328
	15	rs16969968	78882925	A	G	111072	0.0583	0.00903	1.03E-10	0.327
	15	rs1051730	78894339	A	G	111004	0.0586	0.00903	8.76E-11	0.328
	15	rs1317286	78896129	G	A	111039	0.0573	0.00902	2.06E-10	0.333
	15	rs8040868	78911181	C	T	110975	0.0457	0.00870	1.47E-07	0.393
15	rs4243084	78911672	C	G	110950	0.0582	0.00900	9.82E-11	0.336	
Mothers	19	rs283815	45390333	G	A	75177	0.0622	0.01242	5.55E-07	0.222
	19	rs6857	45392254	T	C	75624	0.0827	0.01354	1.01E-09	0.166
	19	rs71352238	45394336	C	T	67708	0.0821	0.01518	6.42E-08	0.147
	19	rs157581	45395714	C	T	115072	0.0557	0.01015	4.14E-08	0.218
	19	rs34404554	45395909	G	C	75724	0.0717	0.01444	6.76E-07	0.143
	19	rs157582	45396219	T	C	75656	0.0630	0.01239	3.68E-07	0.220
	19	rs59007384	45396665	T	G	75667	0.0652	0.01256	2.15E-07	0.208
	19	rs769449	45410002	A	G	114421	0.0866	0.01263	6.97E-12	0.121
	19	<i>rs429358</i>	<i>45411941</i>	<i>C</i>	<i>T</i>	<i>75576</i>	<i>0.1008</i>	<i>0.01406</i>	<i>7.45E-13</i>	<i>0.153</i>

	19	rs4420638	45422946	G	A	111666	0.0768	0.01078	1.04E-12	0.187
Both	4	rs72631060	60247508	T	C		-0.0878		3.33E-07	
	5	rs17844309	140214995	A	G		-0.1886		9.50E-07	
	6	rs74617384	160997118	T	A		0.0588		9.83E-08	
	15	rs11858836	78783277	A	G		0.0350		3.28E-08	
	15	rs9788721	78802869	C	T		0.0436		3.91E-12	
	15	rs8034191	78806023	C	T		0.0460		2.82E-13	
	15	rs10519203	78814046	G	A		0.0468		1.03E-13	
	15	rs931794	78826180	G	A		0.0460		2.80E-13	
	15	rs55853698	78857939	G	T		0.0452		7.62E-13	
	15	rs55781567	78857986	G	C		0.0454		6.72E-13	
	15	rs17486278	78867482	C	A		0.0460		3.69E-13	
	15	rs72740964	78868636	A	G		0.0464		3.53E-13	
	15	rs7180002	78873993	T	A		0.0462		3.39E-13	
	15	rs951266	78878541	A	G		0.0462		2.94E-13	
	15	rs16969968	78882925	A	G		0.0456		5.29E-13	
	15	rs578776	78888400	A	G		-0.0348		1.73E-07	
	15	rs1051730	78894339	A	G		0.0454		6.73E-13	
	15	rs1317286	78896129	G	A		0.0446		1.58E-12	
	15	rs12914385	78898723	T	C		0.0350		9.94E-09	
	15	rs8040868	78911181	C	T		0.0384		2.85E-10	
	15	rs4243084	78911672	C	G		0.0456		4.48E-13	
	19	rs12972156	45387459	G	C		0.0606		6.37E-09	
	19	rs34342646	45388130	A	G		0.0536		1.25E-07	
	19	rs283815	45390333	G	A		0.0450		4.03E-07	
	19	rs6857	45392254	T	C		0.0686		1.26E-12	
	19	rs71352238	45394336	C	T		0.0572		1.39E-07	
	19	rs157581	45395714	C	T		0.0398		3.69E-08	
	19	rs34095326	45395844	A	G		0.0598		1.71E-07	
	19	rs34404554	45395909	G	C		0.0584		1.49E-08	

19	rs157582	45396219	T	C	0.0442	6.00E-07
19	rs59007384	45396665	T	G	0.0470	1.65E-07
19	rs769449	45410002	A	G	0.0706	4.87E-15
19	rs429358	45411941	C	T	0.0824	2.47E-16
19	rs4420638	45422946	G	A	0.0594	1.12E-14
21	rs17275490	17143899	G	A	0.0904	5.16E-07

**Supplementary Table 2. Mean and maximum parent ages by status for 116,425 subjects in the discovery phase.** Max is maximum.

<b>Parent</b>	<b>Status</b>	<b>Number</b>	<b>Mean age</b>	<b>Max age</b>
Father	Dead	85,419	71.3	105
Father	Alive	25,915	77.9	102
Mother	Dead	69,990	74.9	107
Mother	Alive	45,333	78.5	105

**Supplementary Table 3. Flow and counts of participants and parents through phenotypic and genotypic quality control in UK Biobank.** Table 1 Lives shows the total parental lives for UK Biobank, summing genetically British, declared British and other origins and matches the totals for these categories for each SNP.

<b>UK Biobank Participants</b>	<b>502,664</b>		
Not yet genotyped	349,932		
Available for quality control	152,732		
Adopted	2296		
No parent age >40	3278		
Age at death >115	2		
Vague or small ethnicity	7065		
Missing covariate	181		
<b>Participants available for analysis</b>	<b>139,910</b>		
	<b>Mother</b>	<b>Father</b>	<b>Total</b>
Participants available for analysis	139,910	139,910	279,820
Parental data missing	1374	6365	7739
<b>Parents available for analysis</b>	<b>138,536</b>	<b>133,545</b>	<b>272,081</b>
Of which genotyped at SNP	Mother	Father	Table 1 Lives
rs429358	92,245	89,076	<b>181,321</b>
rs10519203	138,290	133,310	<b>271,600</b>