

## **Online supplement**

### **Methods**

#### **Data analysis**

The following variables were used in the imputation model: childhood age, school academic attainment, BMI and adult education level and self-rated health from an earlier adult follow-up.

For the multivariable model building, we considered age, adult education and occupation and all the childhood SEP markers as potential covariates. We intended to only include SEP markers that satisfied standard criteria for confounding factors (i.e. related to the childhood factors, the ERI components, and that caused a coefficient change  $\geq 10\%$ ). However, for some analyses no SEP marker met these criteria, so we selected father's occupation level and area-level SES for inclusion in models as they met these criteria most often. In childhood SEP model, only age and adult SEP were adjusted for in analyses.

#### **Results**

The characteristics of included participants are presented in Table 1 in the main text. There was no difference in mean age between men and women. Compared to men, women had a higher SEI score (women 6.9% vs. men 2.1%), higher adult education level (higher than university) (women 51.2% vs. men 42.8%) and more often had clerical jobs (women 31.8% vs. men 6.3%). However, men had the better learner self-concept in childhood (men 36.8% vs. women 29.2%) and managerial/professional occupation status (men 68.1% vs. women 61.4%) than women. Regarding the outcome, women had lower mean [SD] effort score (women 10.8 [3.6] vs. men 11.9[3.4]) and lower mean [SD] ERI (women 0.41 [0.2] vs. men 0.46 [0.2]) than men. The

mean [SD] reward score between women and men was similar (women 49.7[5.6] vs. men 49.2[5.8]).

### ***School-related factors***

Better learner self-concept and better academic attainment in childhood independently predicted lower effort for men. For women, better learner self-concept predicted higher effort, but this association was no longer statistically significant after adjusted adult SEP (Supplementary Table 1).

In the reward scale, better academic attainment and enjoyment of physical activity were independently associated with higher reward for men. For women, greater SEI predicted higher reward for women and adult SEP slightly weaken this association (Supplementary Table 2).

### ***Childhood SEP***

On the effort scale (Supplementary Table 3), those men that lived in higher SES areas had lower effort in adulthood. Living in a larger house independently predicted higher effort in adulthood for men. These associations were unchanged by adjustment for covariates. For women, lower grade paternal occupation was associated with lower effort, but this association was weakened by adjusting for adult SEP.

The association between childhood SEP and reward for women was shown in Supplementary Table 4. In general, higher maternal and paternal education level were related to lower reward. However, in women those that a mother with a manual occupation appeared to have higher reward. All of these associations were unchanged after adjusting by other covariates. There was no association between childhood SEP and reward in adulthood in men in this study.

### ***Health-related factors***

For the effort scale (Supplementary Table 5), worse self-rated fitness, poorer self-rated health and drinking in childhood predicted higher effort in men. Men who did more physical activity in childhood reported reduced effort in adulthood. For women, worse self-rated fitness, overweight, drinking in childhood and higher negative affect were associated with higher effort. The association between smoking in childhood and higher effort was only apparent in final models adjusted for adult SEP. After adjusted adult SEP, the association between higher negative affect and higher effort for women was be strengthen.

Poorer self-rated health and negative affect in childhood predicted lower reward for men. Men who did more physical activity in childhood had higher reward and not affected by other factors. For women, overweight and greater negative affect in childhood were associated with lower reward in adulthood, the association was unchanged by adjusting for covariates (Supplementary Table 6).

**Supplementary Table 1. Distribution of school-related factors among boys and girls in 1985**

	Boys		Girls	
	n	%	n	(%)
School Engagement Index, mean (SD)	490	3.5 (1.2)	599	3.7 (1.2)
Learner self-concept				
Worse than others	180	37%	177	29%
Same as others	277	56%	392	66%
Better than others	36	7%	34	6%
Academic Attainment				
Poor/below average	85	14%	51	7%
Average	258	45%	252	35%
Above average	169	30%	283	39%
Excellent	61	11%	134	19%
Enjoyment of school PE				
Don't do/don't have	31	6%	32	5%
Not at all/not much	20	4%	19	3%
Sometimes	112	23%	166	28%
Quite a lot/very much	325	67%	386	64%
Enjoyment of school sports				
Don't do/don't have	28	6%	37	6%
Not at all/not much	15	3%	20	3%
Sometimes	78	16%	135	23%
Quite a lot/very much	372	76%	408	68%
Enjoyment of physical activity				
No	21	4%	16	3%
Yes	469	96%	582	98%

% may sum to >100 due to rounding

**Supplementary Table 2. Distribution of socioeconomic factors among boys and girls in 1985**

	Boys		Girls	
	n	(%)	n	(%)
<b>Maternal education</b>				
Low ( $\leq 12$ years)	331	67%	383	60%
Middle (trade/certificate)	78	16%	140	22%
High ( $\geq$ university)	87	18%	111	18%
<b>Paternal education</b>				
Low ( $\leq 12$ years)	210	44%	280	46%
Middle (trade/certificate)	153	32%	171	28%
High ( $\geq$ university)	117	25%	161	26%
<b>Maternal occupation</b>				
High (Manager/professional)	120	24%	177	28%
Middle (Clerical)	161	30%	195	30%
Low (Labourer)	64	14%	92	14%
No paid job	156	28%	177	28%
<b>Paternal occupation</b>				
High (Manager/professional)	286	57%	356	55%
Middle (Clerical)	26	5%	28	5%
Low (Labourer)	191	38%	244	40%
No paid job	3	1%	4	1%
<b>Rooms in home</b>				
$\leq 7$ rooms	158	32%	174	28%
8~10 rooms	177	35%	216	34%
$> 10$ rooms	167	33%	240	38%
<b>House rental</b>				
Owned	458	89%	578	89%
Rented	56	11%	70	11%
Unsure	2	1%	4	1%
<b>Number of times moved house</b>				
0 times	230	45%	244	37%
1-3 times	202	39%	278	43%
3+ times	83	16%	131	20%
<b>Siblings</b>				
0-1	271	45%	374	49%
2-3	264	44%	311	41%
$> 3$	65	11%	79	10%
<b>Area socioeconomic status</b>				
Low	37	8%	38	6%
Mid-low	189	39%	234	39%
Mid high	132	27%	164	28%
High	126	26%	158	26%

% may round to  $> 100$  due to rounding

**Supplementary Table 3. Distribution of health-related factors among boys and girls in 1985**

	<b>Boys</b>		<b>Girls</b>	
	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>
Self-rated fitness				
Better than others	144	29%	123	20%
Same as others	312	64%	414	69%
Worse than others	35	7%	66	11%
Self-rated health				
Very good	200	41%	231	38%
Good	206	42%	260	43%
Average	81	16%	106	18%
Poor	6	1%	6	1%
BMI				
Healthy	555	92%	704	91%
Overweight or obese	49	8%	66	9%
Alcohol Consumption				
No	325	66%	417	69%
Yes	168	34%	186	31%
Smoking				
No	451	92%	542	90%
Yes	40	8%	58	10%
Eating breakfast				
Yes	433	88%	493	82%
No	60	12%	109	18%
Positive affect	484	6.2 (1.7)	590	6.0 (1.7)
Negative affect	485	3.6 (1.9)	592	3.7 (2.0)
Total physical activity				
<180 min	90	19%	122	21%
180-360 min	155	33%	199	34%
360-540 min	82	17%	120	24%
>540 min	146	31%	139	23%

% may sum to >100 due to rounding

Supplementary Table 4: Association between childhood school-related factors and effort for men and women

Variable	Model 1		Model 2		Model 3	
	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI
<i>Men</i>						
SEI (per unit)	-0.14	(-0.41, 0.13)	-0.13	(-0.40, 0.14)	-0.14	(-0.42, 0.14)
Learner self-concept						
Worse than others	Ref.		Ref.		Ref.	
Same as others	<b>-1.23</b>	<b>(-2.43, -0.03)</b>	<b>-1.29</b>	<b>(-2.49, -0.08)</b>	<b>-1.34</b>	<b>(-2.55, -0.12)</b>
Better than others	<b>-1.91</b>	<b>(-3.15, -0.68)</b>	<b>-1.93</b>	<b>(-3.17, -0.69)</b>	<b>-2.05</b>	<b>(-3.32, -0.78)</b>
Academic Attainment						
Poor/below average	Ref.		Ref.		Ref.	
Average	-0.71	(-1.60, 0.17)	-0.76	(-1.65, 0.14)	-0.77	(-1.67, 0.14)
Above average	<b>-1.12</b>	<b>(-2.06, -0.18)</b>	<b>-1.10</b>	<b>(-2.06, -0.15)</b>	<b>-1.18</b>	<b>(-2.17, -0.20)</b>
Excellent	<b>-1.46</b>	<b>(-2.66, -0.26)</b>	<b>-1.45</b>	<b>(-2.67, -0.23)</b>	<b>-1.55</b>	<b>(-2.81, -0.30)</b>
Enjoyment of school PE						
Don't do/don't have	Ref.		Ref.		Ref.	
Not at all/not much	0.27	(-1.72, 2.26)	0.36	(-1.64, 2.35)	0.34	(-1.67, 2.35)
Sometimes	0.72	(-0.72, 2.15)	0.60	(-0.84, 2.04)	0.61	(-0.84, 2.06)
Quite a lot/very much	0.46	(-0.87, 1.79)	0.47	(-0.86, 1.80)	0.47	(-0.86, 1.81)
Enjoyment of school sports						
Don't do/don't have	Ref.		Ref.		Ref.	
Not at all/not much	-1.59	(-3.75, 0.56)	-1.46	(-3.62, 0.71)	-1.45	(-3.64, 0.74)
Sometimes	-0.46	(-1.94, 1.02)	-0.45	(-1.93, 1.04)	-0.46	(-1.97, 1.05)
Quite a lot/very much	-0.73	(-2.03, 0.57)	-0.65	(-1.95, 0.65)	-0.66	(-1.99, 0.66)
Enjoyment of physical activity						
No	Ref.		Ref.		Ref.	
Yes	1.41	(-0.11, 2.94)	0.96	(-0.68, 2.59)	1.34	(-0.21, 2.88)
<i>Women</i>						
SEI (per unit)	-0.09	(-0.33, 0.15)	-0.11	(-0.34, 0.13)	-0.17	(-0.40, 0.06)
Learner self-concept						
Worse than others	Ref.		Ref.		Ref.	
Same as others	<b>1.45</b>	<b>(0.23, 2.68)</b>	<b>1.36</b>	<b>(0.14, 2.58)</b>	0.91	(-0.29, 2.11)

Variable	Model 1		Model 2		Model 3	
	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI
Better than others	<b>1.36</b>	<b>(0.08, 2.65)</b>	1.25	(-0.03, 2.53)	0.55	(-0.74, 1.84)
Academic Attainment						
Poor/below average	Ref.		Ref.		Ref.	
Average	0.35	(-0.69, 1.39)	0.36	(-0.68, 1.39)	0.03	(-0.97, 1.04)
Above average	0.12	(-0.90, 1.15)	0.08	(-0.94, 1.11)	-0.41	(-1.42, 0.60)
Excellent	0.16	(-0.96, 1.27)	0.11	(-1.01, 1.23)	-0.38	(-1.49, 0.72)
Enjoyment of school PE						
Don't do/don't have	Ref.		Ref.		Ref.	
Not at all/not much	-0.21	(-2.12, 1.71)	-0.21	(-2.11, 1.70)	-0.29	(-2.13, 1.56)
Sometimes	-0.09	(-1.38, 1.21)	-0.26	(-1.56, 1.03)	-0.28	(-1.53, 0.97)
Quite a lot/very much	0.01	(-1.23, 1.24)	-0.18	(-1.41, 1.05)	-0.31	(-1.50, 0.88)
Enjoyment of school sports						
Don't do/don't have	Ref.		Ref.		Ref.	
Not at all/not much	0.63	(-1.23, 2.49)	0.55	(-1.30, 2.40)	0.87	(-0.92, 2.65)
Sometimes	-0.84	(-2.07, 0.39)	-0.92	(-2.14, 0.31)	-0.94	(-2.12, 0.25)
Quite a lot/very much	-0.40	(-1.53, 0.74)	-0.56	(-1.70, 0.57)	-0.59	(-1.69, 0.50)
Enjoyment of physical activity						
No	Ref.		Ref.		Ref.	
Yes	1.09	(-0.65, 2.82)	0.92	(-0.83, 2.67)	0.39	(-1.31, 2.09)

**Bold denotes  $p \leq 0.05$ .** Ref.= reference category; PE = physical education.

Model 1: adjusted childhood age; Model 2: adjusted childhood age and childhood SEP; Model 3: Model 2 + adult SEP



Supplementary Table 5: Association between childhood school-related factors and reward for men and women

Variables	Model 1			Model 2			Model 3		
	$\beta$	(95% CI)		$\beta$	(95% CI)		$\beta$	(95% CI)	
<i>Men</i>									
SEI (per unit)	0.34	(-0.11,	0.79)	0.32	(-0.13,	0.78)	0.24	(-0.22,	0.71)
Learner self-concept									
Worse than others	Ref.			Ref.			Ref.		
Same as others	0.23	(-1.79,	2.25)	0.27	(-1.76,	2.30)	0.03	(-2.00,	2.05)
Better than others	1.25	(-0.83,	3.33)	1.29	(-0.80,	3.38)	1.02	(-1.10,	3.14)
Academic Attainment									
Poor/below average	Ref.			Ref.			Ref.		
Average	<b>1.63</b>	<b>(0.17,</b>	<b>3.09)</b>	<b>1.78</b>	<b>(0.30,</b>	<b>3.26)</b>	<b>1.75</b>	<b>(0.28,</b>	<b>3.23)</b>
Above average	1.33	(-0.22,	2.89)	1.42	(-0.15,	2.99)	1.31	(-0.30,	2.91)
Excellent	1.31	(-0.67,	3.30)	1.46	(-0.56,	3.47)	1.25	(-0.79,	3.29)
Enjoyment of school PE									
Don't do/don't have	Ref.			Ref.			Ref.		
Not at all/not much	-3.15	(-6.45,	0.16)	<b>-3.35</b>	<b>(-6.67,</b>	<b>-0.03)</b>	<b>-3.49</b>	<b>(-6.80,</b>	<b>-0.17)</b>
Sometimes	-1.88	(-4.26,	0.50)	-2.06	(-4.45,	0.34)	-1.96	(-4.34,	0.42)
Quite a lot/very much	-0.85	(-3.06,	1.36)	-0.95	(-3.16,	1.26)	-0.88	(-3.07,	1.31)
Enjoyment of school sports									
Don't do/don't have	Ref.			Ref.			Ref.		
Not at all/not much	-0.79	(-4.39,	2.82)	-0.59	(-4.22,	3.03)	-0.16	(-3.79,	3.46)
Sometimes	-0.2	(-2.67,	2.28)	-0.06	(-2.55,	2.43)	-0.15	(-2.65,	2.35)
Quite a lot/very much	0.52	(-1.66,	2.69)	0.63	(-1.55,	2.81)	0.54	(-1.65,	2.74)
Enjoyment of physical activity									
No	Ref.			Ref.			Ref.		
Yes	<b>2.70</b>	<b>(0.16,</b>	<b>5.23)</b>	<b>2.87</b>	<b>(0.33,</b>	<b>5.42)</b>	<b>2.76</b>	<b>(0.21,</b>	<b>5.31)</b>
<i>Women</i>									
SEI (per unit)	<b>0.38</b>	<b>(0.01,</b>	<b>0.75)</b>	<b>0.38</b>	<b>(0.01,</b>	<b>0.75)</b>	0.35	(-0.02,	0.72)

Learner self-concept									
Worse than others	Ref.			Ref.			Ref.		
Same as others	-1.51	(-3.42,	0.41)	-1.48	(-3.40,	0.44)	-1.69	(-3.63,	0.25)
Better than others	-1.45	(-3.45,	0.56)	-1.46	(-3.47,	0.55)	-1.95	(-4.03,	0.13)
Academic Attainment									
Poor/below average	Ref.			Ref.			Ref.		
Average	-0.44	(-1.99,	1.11)	-0.36	(-1.92,	1.20)	-0.31	(-1.86,	1.25)
Above average	-0.44	(-1.97,	1.10)	-0.38	(-1.92,	1.17)	-0.38	(-1.93,	1.18)
Excellent	0.29	(-1.38,	1.96)	0.3	(-1.38,	1.99)	0.09	(-1.62,	1.80)
Enjoyment of school PE									
Don't do/don't have	Ref.			Ref.			Ref.		
Not at all/not much	1.67	(-1.31,	4.64)	1.75	(-1.25,	4.74)	1.66	(-1.32,	4.65)
Sometimes	-0.43	(-2.45,	1.58)	-0.26	(-2.29,	1.77)	-0.18	(-2.20,	1.84)
Quite a lot/very much	0.15	(-1.76,	2.07)	0.32	(-1.61,	2.25)	0.24	(-1.68,	2.17)
Enjoyment of school sports									
Don't do/don't have	Ref.			Ref.			Ref.		
Not at all/not much	-0.33	(-3.22,	2.57)	-0.21	(-3.12,	2.70)	-0.06	(-2.96,	2.84)
Sometimes	-1.78	(-3.70,	0.13)	-1.68	(-3.61,	0.24)	-1.56	(-3.48,	0.36)
Quite a lot/very much	-0.72	(-2.50,	1.05)	-0.58	(-2.37,	1.20)	-0.59	(-2.37,	1.19)
Enjoyment of physical activity									
No	Ref.			Ref.			Ref.		
Yes	-0.8	(-3.52,	1.92)	-0.77	(-3.52,	1.99)	-0.60	(-3.36,	2.15)

**Bold denotes  $p \leq 0.05$ .** Ref.= reference category; PE = physical education, SEP: socioeconomic position  
Model 1: adjusted childhood age; Model 2: adjusted childhood age and childhood SEP; Model 3: Model 2+adult SEP

Supplementary Table 6: Association between childhood SEP and effort for men and women

Variable	Model 1			Model 2		
	$\beta$	95% CI		$\beta$	95% CI	
<i>Men</i>						
Maternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle (trade/certificate)	-0.61	(-1.44,	0.22)	-0.65	(-1.49,	0.19)
High ( $\geq$ university)	-0.23	(-1.02,	0.56)	-0.34	(-1.15,	0.47)
Paternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle (trade/certificate)	-0.32	(-1.02,	0.39)	-0.40	(-1.12,	0.31)
High ( $\geq$ university)	0.43	(-0.34,	1.19)	0.34	(-0.46,	1.14)
Maternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	-0.3	(-1.11,	0.50)	-0.27	(-1.09,	0.54)
Low (Labourer)	0.56	(-0.47,	1.60)	0.57	(-0.48,	1.62)
No paid job	-0.08	(-0.89,	0.73)	-0.09	(-0.90,	0.73)
Paternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	0.95	(-0.45,	2.34)	0.95	(-0.45,	2.35)
Low (Labourer)	-0.1	(-0.73,	0.54)	-0.05	(-0.72,	0.62)
No paid job	-0.16	(-4.13,	3.80)	-0.18	(-4.17,	3.80)
Rooms in home						
$\leq 7$ rooms	Ref.			Ref.		
8~10 rooms	0.40	(-0.34,	1.14)	0.39	(-0.35,	1.13)
$> 10$ rooms	<b>0.92</b>	<b>(0.16,</b>	<b>1.67)</b>	<b>0.95</b>	<b>(0.17,</b>	<b>1.73)</b>
House rental						
Owned	Ref.			Ref.		
Rented	-0.39	(-1.35,	0.57)	-0.38	(-1.35,	0.58)
Unsure	-2.82	(-7.63,	2.00)	-2.84	(-7.67,	2.00)
Number of times moved house						
0 times	Ref.			Ref.		

Variable	Model 1			Model 2		
	$\beta$	95% CI		$\beta$	95% CI	
1-3 times	0.25	(-0.39,	0.90)	0.21	(-0.44,	0.86)
3+ times	-0.18	(-1.04,	0.68)	-0.21	(-1.07,	0.65)
Number of siblings						
0-1	Ref.			Ref.		
2-3	-0.22	(-0.90,	0.46)	-0.20	(-0.88,	0.48)
3+	-0.61	(-1.28,	0.07)	-0.59	(-1.27,	0.09)
Area socioeconomic status						
Low	Ref.			Ref.		
Mid-low	<b>-1.27</b>	<b>(-2.50,</b>	<b>-0.03)</b>	<b>-1.27</b>	<b>(-2.52,</b>	<b>-0.03)</b>
Mid high	<b>-1.55</b>	<b>(-2.82,</b>	<b>-0.28)</b>	<b>-1.56</b>	<b>(-2.85,</b>	<b>-0.27)</b>
High	-1.02	(-2.31,	0.27)	-1.04	(-2.34,	0.27)
<i>Women</i>						
Maternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle(trade/certificate)	0.20	(-0.46,	0.87)	-0.06	(-0.70,	0.58)
High( $\geq$ university)	0.34	(-0.38,	1.07)	-0.19	(-0.92,	0.53)
Paternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle(trade/certificate)	-0.38	(-1.03,	0.26)	-0.39	(-1.00,	0.23)
High( $\geq$ university)	-0.12	(-0.80,	0.57)	-0.58	(-1.26,	0.10)
Maternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	-0.26	(-0.95,	0.43)	0.10	(-0.58,	0.77)
Low (Labourer)	0.06	(-0.78,	0.90)	0.72	(-0.11,	1.55)
No paid job	-0.58	(-1.29,	0.13)	-0.16	(-0.85,	0.54)
Paternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	<b>-1.52</b>	<b>(-2.75,</b>	<b>-0.29)</b>	-1.04	(-2.24,	0.17)
Low (Labourer)	-0.53	(-1.09,	0.03)	-0.15	(-0.72,	0.41)
No paid job	-0.68	(-4.28,	2.91)	-0.05	(-3.53,	3.44)

Variable	Model 1			Model 2		
	$\beta$	95% CI		$\beta$	95% CI	
<b>Rooms in home</b>						
≤7 rooms	Ref.			Ref.		
8~10 rooms	-0.11	(-0.78,	0.55)	-0.27	(-0.91,	0.37)
>10 rooms	0.05	(-0.60,	0.71)	-0.26	(-0.90,	0.37)
<b>House rental</b>						
Owned	Ref.			Ref.		
Rented	-0.15	(-0.99,	0.69)	-0.01	(-0.83,	0.81)
Unsure	-0.57	(-4.15,	3.01)	-1.36	(-4.82,	2.09)
<b>Number of times moved house</b>						
0 times	Ref.			Ref.		
1-3 times	0.54	(-0.04,	1.12)	0.33	(-0.23,	0.89)
3+ times	0.09	(-0.64,	0.82)	-0.07	(-0.77,	0.64)
<b>Number of siblings</b>						
0-1	Ref.			Ref.		
2-3	-0.02	(-0.58,	0.55)	0.10	(-0.45,	0.65)
3+	0.13	(-0.48,	0.74)	0.09	(-0.50,	0.67)
<b>Area socioeconomic status</b>						
Low	Ref.			Ref.		
Mid-low	0.81	(-0.36,	1.99)	0.50	(-0.64,	1.64)
Mid high	-0.27	(-1.47,	0.93)	-0.58	(-1.75,	0.58)
High	0.31	(-0.90,	1.53)	-0.36	(-1.55,	0.82)

**Bold denotes  $p \leq 0.05$ .** Ref.= reference category; SEP: socioeconomic position  
Model 1: adjusted childhood age; Model 2: adjusted childhood age and adult SEP

Supplementary Table 8: Association between childhood SEP and reward for men and women

Variable	Model 1			Model 2		
	$\beta$	95% CI		$\beta$	95% CI	
<i>Men</i>						
Maternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle(trade/certificate)	0.57	(-0.82,	1.97)	0.56	(-0.84,	1.96)
High( $\geq$ university)	0.19	(-1.13,	1.52)	0.09	(-1.26,	1.44)
Paternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle(trade/certificate)	0.69	(-0.49,	1.86)	0.46	(-0.73,	1.64)
High( $\geq$ university)	-0.54	(-1.83,	0.75)	-0.83	(-2.15,	0.50)
Maternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	0.07	(-1.26,	1.41)	0.15	(-1.18,	1.48)
Low (Labourer)	-1.63	(-3.35,	0.09)	-1.53	(-3.25,	0.19)
No paid job	-0.91	(-2.25,	0.44)	-0.99	(-2.32,	0.34)
Paternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	-0.23	(-2.54,	2.07)	-0.21	(-2.50,	2.08)
Low (Labourer)	-0.37	(-1.42,	0.68)	0.04	(-1.06,	1.13)
No paid job	3.56	(-2.98,	10.11)	4.09	(-2.42,	10.59)
Rooms in home						
$\leq 7$ rooms	Ref.			Ref.		
8~10 rooms	-0.62	(-1.82,	0.59)	-0.65	(-1.85,	0.55)
$> 10$ rooms	0.65	(-0.58,	1.89)	0.45	(-0.82,	1.72)
House rental						
Owned	Ref.			Ref.		
Rented	-0.01	(-1.60,	1.58)	-0.03	(-1.61,	1.55)
Unsure	<b>-8.14</b>	<b>(-16.10,</b>	<b>-0.17)</b>	-7.61	(-15.52,	0.30)
Number of times moved house						
0 times	Ref.			Ref.		

Variable	Model 1			Model 2		
	$\beta$	95% CI		$\beta$	95% CI	
1-3 times	-0.6	(-1.67,	0.46)	-0.76	(-1.82,	0.30)
3+ times	-0.44	(-1.86,	0.97)	-0.43	(-1.83,	0.97)
Number of siblings						
0-1	Ref.			Ref.		
2-3	0.42	(-0.71,	1.54)	0.37	(0.75,	1.48)
3+	0.18	(-0.94,	1.29)	0.25	(-0.86,	1.36)
Low						
Mid-low	0.35	(-1.71,	2.42)	0.33	(-1.73,	2.39)
Mid high	1.25	(-0.88,	3.37)	1.21	(-0.92,	3.34)
High	1.76	(-0.39,	3.92)	1.60	(-0.56,	3.76)
Maternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle(trade/certificate)	<0.01	(-0.98,	0.99)	0.02	(-0.97,	1.01)
High( $\geq$ university)	<b>-1.69</b>	<b>(-2.77,</b>	<b>-0.61)</b>	<b>-1.87</b>	<b>(-2.98,</b>	<b>-0.76)</b>
Paternal education						
Low ( $\leq 12$ years)	Ref.			Ref.		
Middle(trade/certificate)	<b>-1.15</b>	<b>(-2.09,</b>	<b>-0.20)</b>	<b>-1.14</b>	<b>(-2.09,</b>	<b>-0.20)</b>
High( $\geq$ university)	-0.5	(-1.50,	0.51)	-0.59	(-1.63,	0.46)
Maternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	0.76	(-0.27,	1.80)	0.91	(-0.14,	1.96)
Low (Labourer)	<b>1.78</b>	<b>(0.51,</b>	<b>3.05)</b>	<b>1.94</b>	<b>(0.64,</b>	<b>3.24)</b>
No paid job	0.64	(-0.42,	1.71)	0.76	(-0.32,	1.84)
Paternal occupation						
High (Manager/professional)	Ref.			Ref.		
Middle (Clerical)	1.65	(-0.14,	3.45)	1.64	(-0.17,	3.44)
Low (Labourer)	-0.31	(-1.13,	0.51)	-0.31	(-1.16,	0.54)
No paid job	2.26	(-2.99,	7.50)	2.10	(-3.13,	7.34)
Rooms in home						
$\leq 7$ rooms	Ref.			Ref.		

Variable	Model 1			Model 2		
	$\beta$	95% CI		$\beta$	95% CI	
8~10 rooms	0.83	(-0.18,	1.83)	0.85	(-0.15,	1.85)
>10 rooms	0.55	(-0.45,	1.54)	0.58	(-0.42,	1.58)
House rental						
Owned	Ref.			Ref.		
Rented	1.14	(-0.11,	2.39)	1.32	(0.06,	2.58)
Unsure	2.42	(-2.91,	7.74)	2.58	(-2.71,	7.88)
Move frequency*						
0 times	Ref.			Ref.		
1-3 times	-0.32	(-1.19,	0.55)	-0.32	(-1.19,	0.55)
3+ times	-0.41	(-1.50,	0.68)	-0.24	(-1.33,	0.85)
Number of siblings						
0-1	Ref.			Ref.		
2-3	-0.55	(-1.40,	0.30)	-0.57	(-1.41,	0.27)
3+	0.13	(-0.78,	1.03)	0.19	(-0.71,	1.09)
Area socioeconomic status						
Low	Ref.			Ref.		
Mid-low	-0.68	(-2.53,	1.17)	-0.47	(-2.32,	1.38)
Mid high	0.07	(-1.82,	1.97)	0.26	(-1.63,	2.15)
High	-0.61	(-2.52,	1.30)	-0.55	(-2.48,	1.38)

**Bold denotes  $p \leq 0.05$ .** Ref.= reference category; SEP: socioeconomic position  
Model 1: adjusted childhood age; Model 2: adjusted childhood age and adult SEP



Supplementary Table 9: Association between childhood health-related factors and effort for men and women

Variable	Model 1			Model 2			Model 3		
	$\beta$	95% CI		$\beta$	95% CI		$\beta$	95% CI	
<i>Men</i>									
Self-rated fitness									
Better than others	Ref.			Ref.			Ref.		
Same as others	<b>0.85</b>	<b>(0.16, 1.55)</b>		<b>0.88</b>	<b>(0.19, 1.58)</b>		<b>0.89</b>	<b>(0.19, 1.59)</b>	
Worse than others	0.18	(-1.12, 1.48)		0.14	(-1.17, 1.44)		0.14	(-1.18, 1.47)	
Self-rated health (per unit) <sup>a</sup>	<b>0.42</b>	<b>(0.00, 0.83)</b>		0.39	(-0.03, 0.80)		0.40	(-0.02, 0.83)	
BMI									
Normal	Ref.			Ref.			Ref.		
Overweight	0.73	(-0.33, 1.80)		0.74	(-0.34, 1.81)		0.74	(-0.34, 1.81)	
Alcohol Consumption									
No	Ref.			Ref.			Ref.		
Yes	<b>0.81</b>	<b>(0.15, 1.47)</b>		<b>0.76</b>	<b>(0.09, 1.42)</b>		<b>0.77</b>	<b>(0.10, 1.44)</b>	
Smoking									
No	Ref.			Ref.			Ref.		
Yes	-0.22	(-1.40, 0.96)		-0.23	(-1.43, 0.96)		-0.22	(-1.42, 0.99)	
Eating breakfast									
Yes	Ref.			Ref.			Ref.		
No	-0.07	(-1.02, 0.87)		-0.10	(-1.06, 0.85)		-0.12	(-1.08, 0.84)	
Positive affect (per unit) <sup>b</sup>	<-0.01	(-0.19, 0.18)		-0.02	(-0.21, 0.17)		-0.02	(-0.21, 0.17)	
Negative affect (per unit) <sup>b</sup>	0.05	(-0.12, 0.21)		0.04	(-0.13, 0.20)		0.04	(-0.13, 0.21)	
Total physical activity									
<180 min	Ref.			Ref.			Ref.		
180-360 min	-0.43	(-1.37, 0.50)		-0.42	(-1.35, 0.52)		-0.43	(-1.37, 0.52)	
360-540 min	-1.22	(-2.32, -0.13)		-1.15	(-2.25, -0.05)		-1.16	(-2.28, -0.05)	
>540 min	-0.9	(-1.86, 0.06)		-0.88	(-1.85, 0.08)		-0.89	(-1.86, 0.08)	
<i>Women</i>									
Self-rated fitness									
Better than others	Ref.			Ref.			Ref.		
Same as others	-0.28	(-1.00, 0.43)		-0.14	(-0.85, 0.58)		0.09	(-0.61, 0.78)	

Variable	Model 1			Model 2			Model 3		
	$\beta$	95% CI		$\beta$	95% CI		$\beta$	95% CI	
Worse than others	<b>-1.14</b>	<b>(-2.18, -0.10)</b>		-0.98	(-2.02, 0.06)		-0.51	(-1.52, 0.51)	
Self-rated health (per unit) <sup>a</sup>	-0.05	(-0.42, 0.33)		<0.01	(-0.37, 0.38)		0.18	(-0.18, 0.54)	
<b>BMI</b>									
Normal	Ref.			Ref.			Ref.		
Overweight	<b>1.07</b>	<b>(0.17, 1.97)</b>		<b>1.02</b>	<b>(0.12, 1.92)</b>		<b>1.03</b>	<b>(0.16, 1.91)</b>	
<b>Alcohol Consumption</b>									
No	Ref.			Ref.			Ref.		
Yes	<b>1.08</b>	<b>(0.46, 1.70)</b>		<b>0.99</b>	<b>(0.38, 1.61)</b>		<b>1.02</b>	<b>(0.43, 1.62)</b>	
<b>Smoking</b>									
No	Ref.			Ref.			Ref.		
Yes	0.56	(-0.42, 1.53)		0.65	(-0.33, 1.63)		1.03	(0.08, 1.98)	
<b>Eating breakfast)</b>									
Yes	Ref.			Ref.			Ref.		
No	0.14	(-0.60, 0.87)		0.16	(-0.58, 0.89)		0.17	(-0.54, 0.87)	
Positive affect (per unit) <sup>b</sup>	0.09	(-0.07, 0.26)		0.08	(-0.08, 0.25)		0.08	(-0.08, 0.24)	
Negative affect (per unit) <sup>b</sup>	<b>0.14</b>	<b>(0.00, 0.28)</b>		<b>0.14</b>	<b>(0.00, 0.28)</b>		<b>0.17</b>	<b>(0.03, 0.30)</b>	
<b>Total physical activity</b>									
<180 min	Ref.			Ref.			Ref.		
180-360 min	0.24	(-0.55, 1.02)		0.23	(-0.55, 1.01)		0.16	(-0.60, 0.91)	
360-540 min	-0.29	(-1.17, 0.58)		-0.40	(-1.28, 0.47)		-0.37	(-1.22, 0.48)	
>540 min	0.25	(-0.62, 1.11)		0.14	(-0.73, 1.00)		-0.08	(-0.93, 0.76)	

**Bold denotes  $p \leq 0.05$ .** Ref = reference category; BMI: body mass index; a: range from 'very good' to 'very poor'; b: higher scores mean higher positive or negative affect.

Model 1: adjusted childhood age; Model 2: adjusted childhood age and childhood SEP; Model 3: Model 2 + adult SEP

Supplementary Table 8: Association between childhood health-related factors and reward for men and women

Variable	Model 1			Model 2			Model 3		
	$\beta$	95% CI		$\beta$	95% CI		$\beta$	95% CI	
<i>Men</i>									
Self-rated fitness									
Better than others	Ref.			Ref.			Ref.		
Same as others	-0.84	(-2.01,	0.32)	-0.89	(-2.06,	0.28)	-0.91	(-2.08,	0.26)
Worse than others	-0.87	(-3.05,	1.31)	-0.60	(-2.80,	1.60)	-0.51	(-2.71,	1.70)
Self-rated health (per unit) <sup>a</sup>	-0.76	(-1.45,	-0.07)	-0.69	(-1.39,	0.01)	-0.64	(-1.35,	0.06)
BMI									
Normal	Ref.			Ref.			Ref.		
Overweight	-0.15	(-1.92,	1.61)	-0.08	(-1.87,	1.70)	-0.18	(-1.96,	1.59)
Alcohol Consumption									
No	Ref.			Ref.			Ref.		
Yes	0.23	(-0.88,	1.34)	0.18	(-0.94,	1.30)	0.24	(-0.88,	1.36)
Smoking									
No	Ref.			Ref.			Ref.		
Yes	-0.39	(-2.36,	1.57)	-0.59	(-2.60,	1.42)	-0.32	(-2.31,	1.68)
Eating breakfast									
Yes	Ref.			Ref.			Ref.		
No	1.40	(-0.18,	2.98)	1.52	(-0.07,	3.11)	1.39	(-0.20,	2.97)
Positive affect (per unit) <sup>b</sup>									
	0.15	(-0.16,	0.46)	0.17	(-0.14,	0.49)	0.16	(-0.15,	0.47)
Negative affect (per unit) <sup>b</sup>									
	<b>-0.38</b>	<b>(-0.65,</b>	<b>-0.11)</b>	<b>-0.37</b>	<b>(-0.64,</b>	<b>-0.10)</b>	<b>-0.33</b>	<b>(-0.60,</b>	<b>-0.05)</b>
Total physical activity									
<180 min	Ref.			Ref.			Ref.		
180-360 min	1.29	(-0.26,	2.84)	1.27	(-0.28,	2.83)	1.05	(-0.49,	2.58)
360-540 min	<b>2.46</b>	<b>(0.64,</b>	<b>4.28)</b>	<b>2.50</b>	<b>(0.67,</b>	<b>4.33)</b>	<b>2.59</b>	<b>(0.78,</b>	<b>4.41)</b>
>540 min	<b>2.24</b>	<b>(0.64,</b>	<b>3.83)</b>	<b>2.20</b>	<b>(0.60,</b>	<b>3.80)</b>	<b>2.06</b>	<b>(0.48,</b>	<b>3.64)</b>
<i>Women</i>									
Self-rated fitness									
Better than others	Ref.			Ref.			Ref.		

Variable	Model 1			Model 2			Model 3		
	$\beta$	95% CI		$\beta$	95% CI		$\beta$	95% CI	
Same as others	0.66	(-0.45,	1.78)	0.62	(-0.51,	1.75)	0.55	(-0.58,	1.68)
Worse than others	0.91	(-0.71,	2.54)	0.85	(-0.79,	2.49)	0.78	(-0.87,	2.42)
Self-rated health (per unit) <sup>a</sup>	0.18	(-0.41,	0.76)	0.18	(-0.41,	0.77)	0.23	(-0.36,	0.82)
BMI									
Normal	Ref.			Ref.			Ref.		
Overweight	<b>-2.22</b>	<b>(-3.57,</b>	<b>-0.87)</b>	<b>-2.18</b>	<b>(-3.54,</b>	<b>-0.82)</b>	<b>-2.23</b>	<b>(-3.58,</b>	<b>-0.87)</b>
Alcohol Consumption									
No	Ref.			Ref.			Ref.		
Yes	-0.25	(-1.23,	0.72)	-0.23	(-1.21,	0.75)	-0.11	(-1.09,	0.87)
Smoking									
No	Ref.			Ref.			Ref.		
Yes	-0.93	(-2.45,	0.59)	-0.91	(-2.45,	0.64)	-0.85	(-2.40,	0.70)
Eating breakfast									
Yes	Ref.			Ref.			Ref.		
No	0.31	(-0.84,	1.46)	0.35	(-0.81,	1.50)	0.48	(-0.67,	1.63)
Positive affect (per unit) <sup>b</sup>	0.04	(-0.22,	0.30)	0.04	(-0.22,	0.30)	0.04	(-0.22,	0.30)
Negative affect (per unit) <sup>b</sup>	<b>-0.50</b>	<b>(-0.72,</b>	<b>-0.28)</b>	<b>-0.50</b>	<b>(-0.72,</b>	<b>-0.28)</b>	<b>-0.48</b>	<b>(-0.70,</b>	<b>-0.26)</b>
Total physical activity									
<180 min	Ref.			Ref.			Ref.		
180-360 min	-0.63	(-1.85,	0.59)	-0.62	(-1.86,	0.61)	-0.68	(-1.91,	0.55)
360-540 min	-0.80	(-2.17,	0.56)	-0.77	(-2.15,	0.61)	-0.79	(-2.17,	0.59)
>540 min	-0.13	(-1.48,	1.22)	-0.08	(-1.44,	1.28)	-0.05	(-1.42,	1.32)

**Bold denotes  $p \leq 0.05$ .** Ref = reference category; BMI: body mass index; a: range from 'very good' to 'very poor'; b: higher scores mean higher positive or negative affect

Model 1: adjusted childhood age; Model 2: adjusted childhood age and childhood SEP; Model 3: Model 2 + adult SEP