

Supplementary Material

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Inequalities in health outcomes by income and education: The case of Norway. *Vienna Yearbook of Population Research*, 23. <https://doi.org/10.1553/p-d6az-d2j6>

Table S.1 Detailed statistics for various mortality measures by income and education^a

	Deaths (N)	%	Population (N)	Unadj. IR	Adj. IR	IR diff.	Unadj. IRR	95% CI	Adjust. IRR ^b	95% CI
Men										
All-cause premature mortality										
<i>Income</i>										
Lowest tertile	13344	57	429031	311.0	305.4	207.9	3.5	(3.4-3.6)	3.4	(3.3-3.5)
Middle tertile	6182	26	429030	144.1	143.8	46.3	1.6	(1.5-1.6)	1.5	(1.5-1.6)
Highest tertile (ref)	3981	17	429028	92.8	97.5	0.0	1.0	(ref)	1.0	(ref)
<i>Education</i>										
Basic	9780	33	273273	357.9	354.6	216.9	3.0	(2.9-3.1)	2.7	(2.6-2.8)
Secondary	14223	48	627705	226.6	211.7	74.0	1.8	(1.8-1.9)	1.6	(1.5-1.6)
Tertiary (ref)	5448	18	444134	122.7	137.8	0.0	1.0	(ref)	1.0	(ref)
Medical intervention-amenable mortality^c										
<i>Income</i>										
Lowest tertile	1126	63	429031	26.3	25.2	18.5	4.5	(3.9-5.1)	4.2	(3.7-4.8)
Middle tertile	411	23	429030	9.6	9.6	2.9	1.6	(1.4-1.9)	1.5	(1.3-1.8)
Highest tertile (ref)	261	15	429028	6.1	6.7	0.0	1.0	(ref)	1.0	(ref)
<i>Education</i>										
Basic	745	34	273273	27.3	27.1	16.9	3.1	(2.8-3.5)	2.8	(2.5-3.2)
Secondary	1083	49	627705	17.3	16.0	5.9	1.9	(1.7-2.2)	1.6	(1.4-1.8)
Tertiary (ref)	395	18	444134	8.9	10.1	0.0	1.0	(ref)	1.0	(ref)
Smoking-related mortality^d										
<i>Income</i>										
Lowest tertile	2118	58	429031	49.4	48.8	35.3	3.9	(3.6-4.3)	3.9	(3.5-4.2)
Middle tertile	965	26	429030	22.5	22.5	9.0	1.7	(1.6-1.9)	1.7	(1.5-1.9)
Highest tertile (ref)	559	15	429028	13.0	13.5	0.0	1.0	(ref)	1.0	(ref)
<i>Education</i>										
Basic	1715	37	273273	62.8	62.0	46.5	4.7	(4.3-5.2)	4.2	(3.8-4.6)
Secondary	2264	49	627705	36.1	33.4	17.9	2.7	(2.4-2.9)	2.2	(2.0-2.4)
Tertiary (ref)	603	13	444134	13.6	15.5	0.0	1.0	(ref)	1.0	(ref)

Table S.1 (continued) Detailed statistics for various mortality measures by income and education^a

	Deaths (N)	%	Population (N)	Unadj. IR	Adj. IR	IR diff.	Unadj. IRR	95% CI	Adjust. IRR ^b	95% CI
Women										
All- cause premature mortality										
<i>Income</i>										
Lowest tertile	8222	54	413946	198.6	192.7	192.7	2.9	(2.8-3.0)	2.7	(2.6-2.8)
Middle tertile	4221	27	413943	102.0	102.6	102.6	1.5	(1.4-1.5)	1.4	(1.4-1.5)
Highest tertile (ref)	2910	19	413942	70.3	76.5	76.5	1.0		1.0	
<i>Education</i>										
Basic	6890	36	256198	268.9	238.8	140.8	3.8	(3.6-3.9)	2.5	(2.4-2.6)
Secondary	8553	44	499466	141.8	141.8	43.8	2.4	(2.3-2.5)	1.5	(1.4-1.5)
Tertiary (ref)	3911	20	540262	98.0	98.0	0.0	1.0		1.0	
Medical intervention-amenable mortality^c										
<i>Income</i>										
Lowest tertile	1215	48	413946	29.4	28.6	14.2	2.2	(2.0-2.5)	2.1	(1.9-2.3)
Middle tertile	761	30	413943	18.4	18.6	4.2	1.4	(1.2-1.5)	1.3	(1.2-1.5)
Highest tertile (ref)	556	22	413942	13.4	14.4	0.0	1.0		1.0	
<i>Education</i>										
Basic	1011	32	256198	32.7	37.1	18.2	2.8	(2.5-3.0)	1.9	(1.7-2.1)
Secondary	1403	44	499466	28.1	23.7	18.2	1.9	(1.8-2.1)	1.3	(1.2-1.4)
Tertiary (ref)	782	24	540262	14.5	18.9	0.0	1.0		1.0	
Smoking-related mortality^d										
<i>Income</i>										
Lowest tertile	1248	53	413946	30.2	29.2	18.3	3.0	(2.7-3.4)	2.9	(2.6-3.2)
Middle tertile	693	29	413943	16.7	16.7	5.8	1.6	(1.5-1.9)	1.6	(1.4-1.8)
Highest tertile (ref)	421	18	413942	10.2	10.9	0.0	1.0		1.0	
<i>Education</i>										
Basic	1213	53	256198	47.4	41.2	30.9	6.7	(6.0-7.5)	4.2	(3.7-4.7)
Secondary	1411	29	499466	28.3	22.9	12.6	3.9	(3.5-4.4)	2.3	(2.0-2.5)
Tertiary (ref)	388	18	540262	7.2	10.3	0.0	1.0		1.0	

Table S.1 (continued)

Notes:

^a All rates are per 10,000; Adj.=adjusted; Unadj.=Unadj. (crude); IR=insidence rate. IR diff.=insidence rate difference (adjusted); IRR=insidence rate ratio; CI= 95% confidence interval.

^b Adj. IRR is based on Poisson regression analysis adjusting for age (10-year cat.), 5-year birth-cohorts, and person-months. Hazard ratios are based on Cox regression similarly adjusted.

^c Medical intervention-amenable mortality include causes of death where medical interventions are available, i.e., infectious diseases (A00-B99), cervical cancer (C53), breast cancer (C50), Hodgkin's disease and leukaemia (C81, C91-C95), hypertension (I10-I15), cerebrovascular disease (I60-I69), pneumonia and influenza (J10-J18), appendicitis, hernia and peptic ulcer (K25-K28, K35-K38, K40-K46, K56), cholecystitis and lithiasis (K80-K83) and maternal deaths (O00-O99).

^d Smoking-related mortality include deaths caused by bronchitis (J40), COPD (J41-J44), bronchiectasis (J47), cancer of the oral cavity, pharynx and oesophagus (C00-C15) and cancer of the trachea, bronchi and lungs (C33-C34, C39).

Table S.2 Background estimates for self-reported health related measures (cf. Figures 1 and 3)^a

Predictor	Measure	Men				Women			
		RII	CI	SII	CI	RII	CI	SII	CI
Education	BMI >30 (obesity)	1.94	1.50-2.51	0.11	0.07-0.16	2.56	1.90-3.45	0.13	0.08-0.17
Education	Fruit intake (≤1/day)	1.33	1.19-1.48	0.15	0.10-0.21	1.56	1.34-1.83	0.16	0.10-0.22
Education	Vegetable intake (≤1/day)	1.39	1.24-1.56	0.17	0.11-0.22	1.95	1.65-2.30	0.22	0.17-0.28
Education	Physical activity (<1/day)	2.46	2.06-2.93	0.28	0.23-0.33	2.33	1.86-2.93	0.18	0.13-0.23
Education	Smoke currently	4.22	3.35-5.32	0.28	0.24-0.33	3.69	2.92-4.67	0.26	0.21-0.31
Education	Less than good health	2.93	2.31-3.73	0.19	0.14-0.23	4.59	3.66-5.76	0.31	0.26-0.36
Education	Long-standing health problems	1.41	1.20-1.66	0.12	0.06-0.17	1.58	1.38-1.81	0.19	0.13-0.25
Education	Global Activity Limitation Indicator	3.85	2.90-5.11	0.18	0.14-0.22	3.56	2.85-4.46	0.27	0.22-0.32
Education	Less than good dental health	2.22	1.80-2.74	0.18	0.13-0.23	2.24	1.75-2.87	0.15	0.10-0.20
Income	BMI >30 (obesity)	1.35	1.05-1.74	0.06	0.01-0.10	2.47	1.84-3.31	0.12	0.08-0.16
Income	Fruit intake (≤1/day)	1.09	0.98-1.21	0.05	-0.01-0.11	1.47	1.26-1.71	0.14	0.09-0.20
Income	Vegetable intake (≤1/day)	1.21	1.09-1.36	0.10	0.04-0.15	1.66	1.41-1.96	0.17	0.12-0.22
Income	Physical activity (<1/day)	2.12	1.78-2.52	0.23	0.18-0.28	3.17	2.52-3.98	0.24	0.19-0.29
Income	Smoke currently	2.95	2.34-3.71	0.22	0.17-0.27	2.76	2.18-3.48	0.21	0.16-0.25
Income	Less than good health	4.54	3.55-5.82	0.25	0.20-0.29	4.28	3.40-5.39	0.27	0.22-0.32
Income	Long-standing health problems	1.68	1.43-1.98	0.16	0.11-0.22	1.59	1.38-1.82	0.18	0.13-0.24
Income	Global Activity Limitation Indicator	4.83	3.62-6.43	0.21	0.17-0.25	3.23	2.58-4.04	0.24	0.19-0.29
Income	Less than good dental health	3.04	2.46-3.76	0.26	0.21-0.30	2.87	2.24-3.69	0.19	0.14-0.24

^aRII=Relative Index of Inequality; CI=95% confidence interval; SII=Slope Index of Inequality.

Table S.3 Background estimates for measures of mortality (cf. Figures 2 and 4)^a

		Men				Women			
		RII	CI	SII	CI	RII	CI	SII	CI
All-cause premature mortality									
	Education	3.60	(3.45-3.76)	12.92	(12.31-13.54)	3.46	(3.28-3.65)	8.15	(7.55-8.74)
	Income	6.17	(5.87-6.50)	12.56	(11.97-13.16)	4.50	(4.23-4.79)	6.67	(6.19-7.16)
Medical intervention-amenable mortality^b									
	Education	3.76	(3.20-4.42)	0.64	(0.49-0.79)	2.38	(2.09-2.72)	0.94	(0.70-1.18)
	Income	9.54	(7.84-11.60)	0.81	(0.66-0.96)	2.97	(2.56-3.45)	0.88	(0.68-1.09)
Smoking-related mortality^c									
	Education	6.23	(5.55-6.99)	1.28	(1.11-1.43)	6.16	(5.35-7.10)	1.03	(0.80-1.26)
	Income	7.39	(6.47-8.44)	1.07	(0.65-1.27)	4.63	(3.95-5.43)	0.41	(0.26-0.57)

^a RII=Relative Index of Inequality; CI=05% confidence interval; SII=Slope Index of Inequality (per 1,000).

^b Medical intervention-amenable mortality include causes of death where medical interventions are available, i.e., infectious diseases (A00-B99), cervical cancer (C53), breast cancer (C50), Hodgkin's disease and leukaemia (C81, C91-C95), hyper tension (I10-I15), cerebrovascular disease (I60-I69), pneumonia and influenza (J10-J18), appendicitis, hernia and peptic ulcer (K25-K28, K35-K38, K40-K46, K56), cholecystitis and lithiasis (K80-K83) and maternal deaths (O00-O99).

^c Smoking-related mortality include deaths caused by bronchitis (J40), COPD (J41-J44), bronchiectasis (J47), cancer of the oral cavity, pharynx and oesophagus (C00-C15) and cancer of the trachea, bronchi and lungs (C33-C34, C39).

Figures S.1 and S.2

Figures S.1 and S.2 show estimated relative indexes of inequality for income for all behavioural risk factors for men and women when using alternative model specifications. From top to bottom the different specifications are:

1. Main model (glm [outcome] c.ridit[education/income] i.age10 i.year if sex==[sex] [pweight=weight], fam(poisson) link(log) irls eform vce(robust)).
2. Income also includes all who have income above 0, not just above 200 000 NOK (~17,600 Euros at time of writing).
3. Using $^{0.36}$ rather than $^{0.5}$ when accounting for number of people in the household when calculation household income. $^{0.36}$ was used in Mackenbach et al. (2008), while $^{0.5}$ is commonly used elsewhere (OECD, 2013).
4. Not using survey weights.
5. Adjusting income tertiles for 10-year age groups in addition to sex and survey year.
6. Using income quintiles instead of tertiles. In both cases calculated within sex and survey year.
7. Including additional control for 5-year birth cohorts. Including control for birth cohorts leads to collinearity.
8. Controlling for age in 5-year groups instead of 10-year groups.
9. Using family(binomial) instead of family(poisson).
10. Using ridits that were stratified by sex and survey year instead of sex and 5-year birth cohorts.
11. Not including any control variables, i.e. dropping 10-year age groups and survey year.
12. Limiting the age span of the respondents to 30-65 instead of 30-69.

Figure S.1 Sensitivity tests - RII - Men - Income

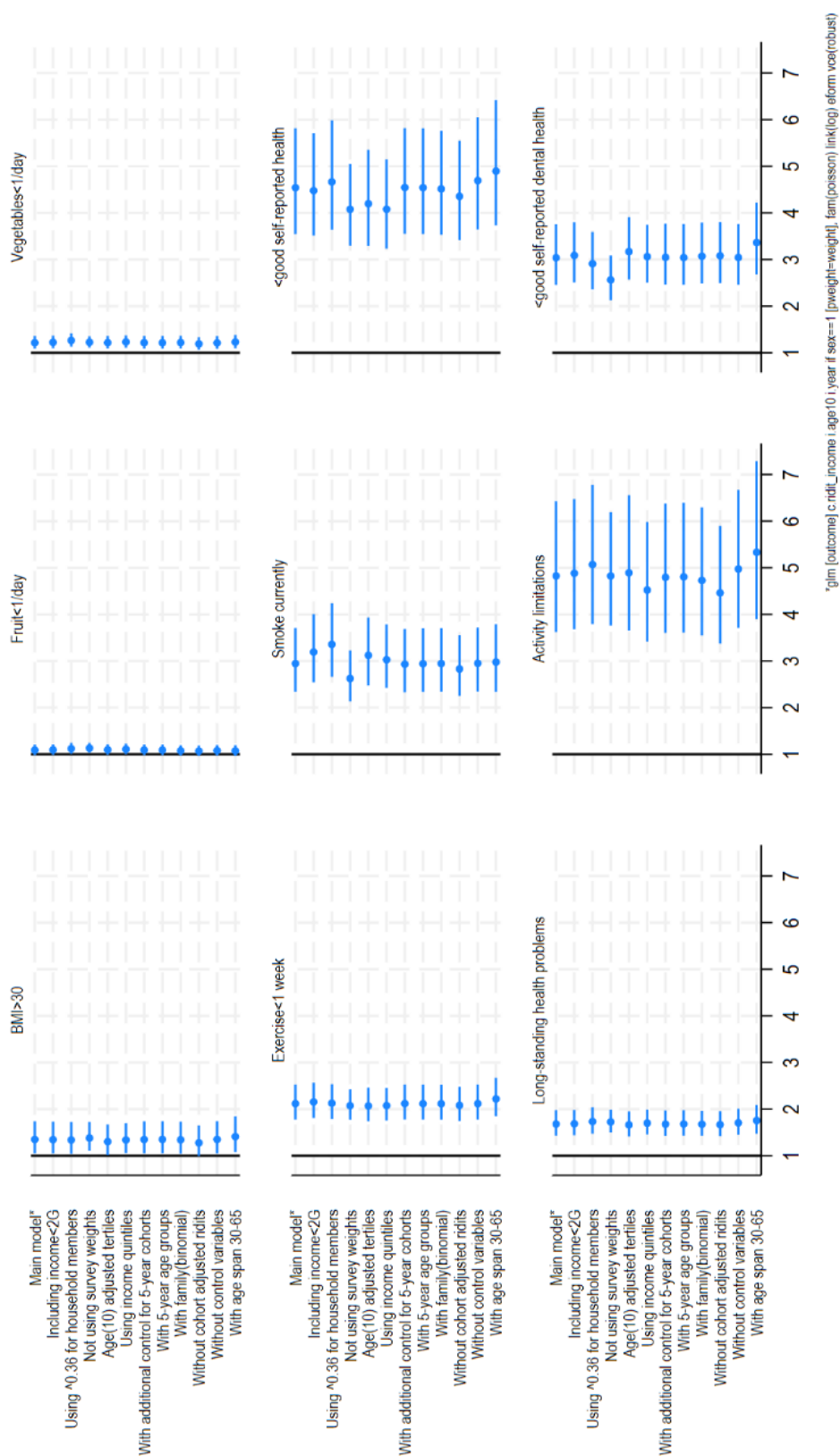
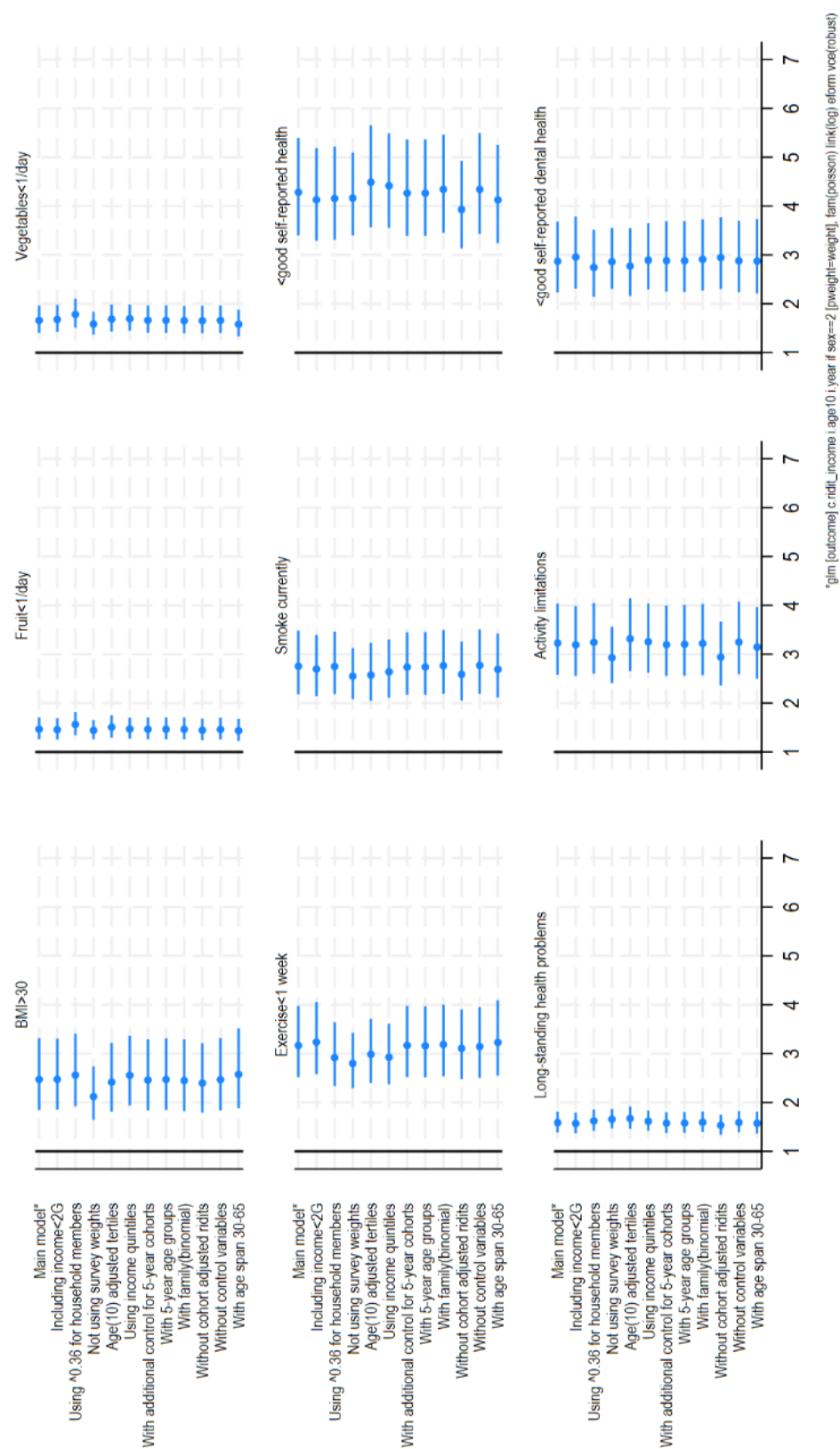


Figure S.2 Sensitivity tests - RII - Women - Income



References

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