Online Supplemental material - revised

Figure S1. Median (and interquartile range) of income across education and age groups in patients hospitalized with an incident heart failure in Norway, 2000-2014: the CVDNOR project
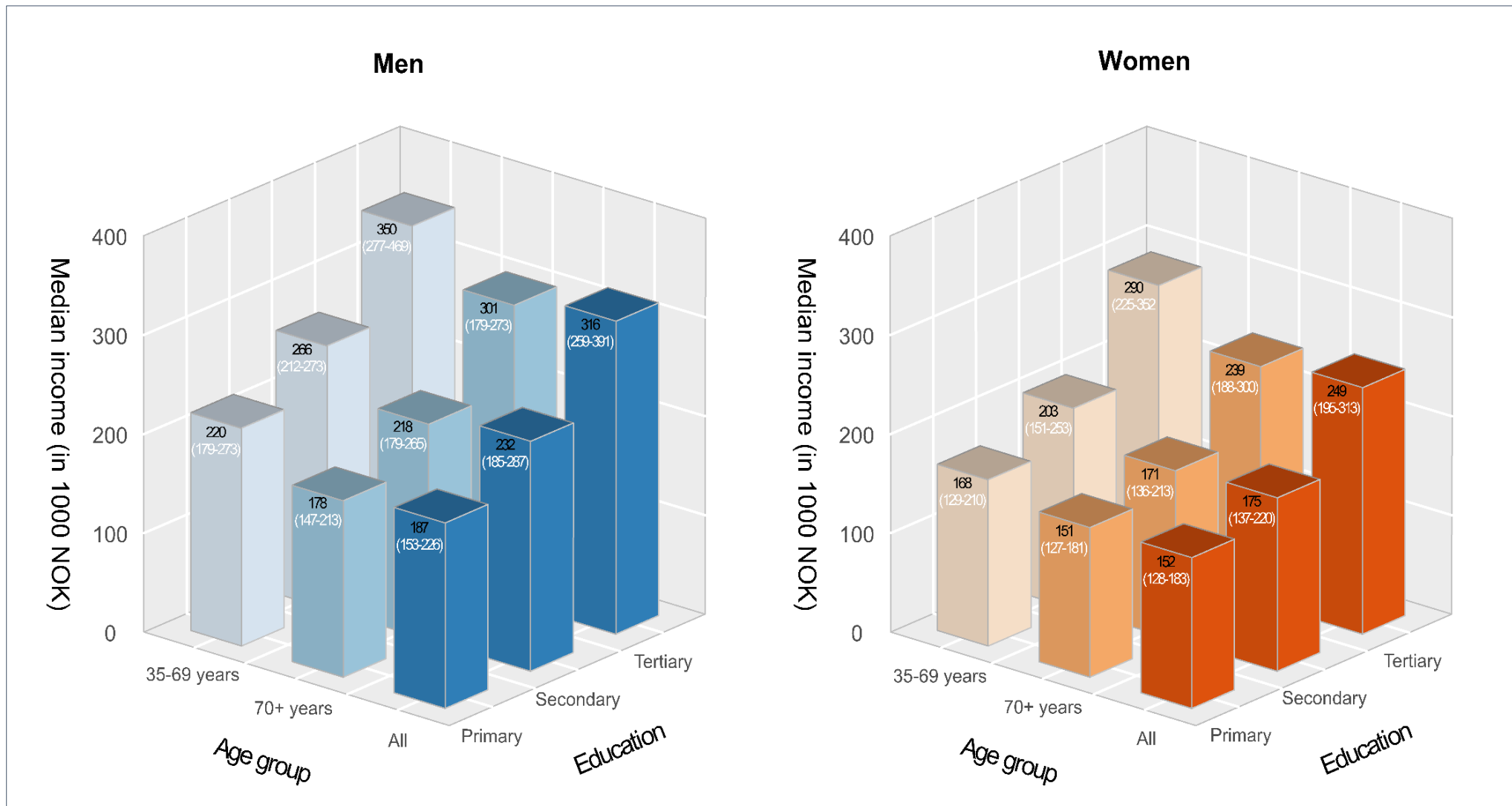
Table S1. Information on study endpoint across age group, sex, education and income: the CVDNOR project

	All	By sex and age group				By education and income**			
	Total	Men, 35-69 years	Women, 35-69 years	Men, 70+ years	Women, 70+ years	Group I	Group II	Group III	Group IV
	(n = 34 127)	(n = 2914)	(n = 1177)	(n = 13 748)	(n = 16 288)	(n = 19 210)	(n = 12 097)	(n = 413)	(n = 2407)
Sex (male)	16 662 (48.8)	2914 (100)	-	13 748 (100)	-	9483 (49.4)	5331 (44.1)	249 (60.3)	1599 (48.8)
Age at HF hospitalization, *mean (SD)*	80.9 (8.9)	62.6 (6.8)	63.0 (6.7)	82.1 (5.7)	84.5 (5.6)	80.5 (9.2)	81.6 (8.3)	77.0 (11.6)	80.6 (9.0)
Time (in days) from HF hospitalization to death, *median (IRQ)*	641 (137 - 1506)	1199 (344 - 2304)	1000 (225 - 2257)	582 (129 - 1361)	596 (121 - 1452)	738 (167 - 1643)	494 (102 - 1259)	960 (251 - 1948)	659 (143 - 1527)
By underlying cause of death									
CVD deaths	19 842 (58.1)	1603 (55.0)	521 (44.3)	7837 (57.0)	9881 (60.7)	11375 (59.2)	5238 (43.3)	164 (39.7)	9881 (60.7)
Non-CVD deaths	14 285 (41.9)	1311 (45.0)	656 (55.7)	5911 (43.0)	6407 (39.3)	7385 (40.8)	6859 (56.7)	249 (60.3)	1359 (56.5)
By place of death									
In a hospital	15 460 (45.3)	1562 (55.6)	705 (61.9)	6555 (47.7)	6638 (40.8)	8588 (45.0)	5449 (45.0)	207 (50.1)	1216 (50.5)
Nursing home	13 778 (40.4)	431 (12.8)	229 (17.4)	5126 (37.3)	7992 (49.1)	7779 (40.5)	5038 (41.7)	145 (35.1)	816 (33.9)
Outside hospital	392 (1.2)	139 (4.8)	24 (2.0)	150 (1.1)	79 (0.5)	222 (1.2)	135 (1.1)	9 (2.2)	26 (1.1)
Home	3938 (11.5)	678 (23.3)	196 (16.7)	1709 (12.4)	1355 (8.2)	2326 (12.1)	1260 (10.4)	46 (11.1)	306 (12.7)
Missing*	559 (1.6)	104 (3.6)	23 (2.0)	208 (1.5)	224 (1.4)	295 (1.5)	215 (1.8)	6 (1.5)	43 (1.8)
By civil status									
Unmarried	3080 (9.0)	566 (19.4)	128 (10.9)	1185 (8.6)	1201 (7.4)	1961 (10.2)	864 (7.1)	42 (10.2)	213 (8.9)
Married	14 028 (41.1)	1513 (51.9)	598 (50.8)	8407 (61.2)	3510 (21.6)	8674 (45.2)	3825 (31.6)	252 (61.0)	1277 (53.1)
Widow/Widowed	14 298 (41.9)	118 (4.1)	182 (15.5)	3334 (24.2)	10 664 (65.5)	7198 (37.5)	6336 (52.4)	58 (14.0)	706 (29.3)
Divorced/Separated	2721 (8.0)	717 (24.6)	269 (22.8)	882 (6.0)	913 (5.6)	1377 (7.2)	1072 (8.9)	61 (14.8)	211 (8.7)
By timing of death									
During HF hospitalization	2973 (8.7)	124 (4.3)	54 (4.6)	1233 (9.0)	1567 (9.6)	1614 (8.4)	1113 (9.2)	32 (7.7)	214 (8.9)
After discharge	31 154 (91.3)	2790 (95.7)	1113 (94.4)	12 515 (91.0)	14 721 (90.4)	17 596 (91.6)	10 984 (90.8)	381 (92.3)	2193 (91.1)

* Including 98 individuals who died abroad

** Group I: primary or secondary education and income < median; Group II: primary or secondary education and income ≥ median; Group III: tertiary education and income < median; Group IV: tertiary education and income ≥ median

HF = heart failure; SD = standard deviation; IQR = interquartile range; CVD = cardiovascular diseases

Table S2. Baseline characteristics by surviving status: The CVDNOR project

Characteristics	By surviving status		P value
	Alive (n = 15 768)	Dead (n = 34 127)	
Age, *mean (SD)*	72.0 (12.6)	80.9 (8.9)	<0.001
Sex (male)	56.9	48.8	<0.001
Mode of hospitalization*			<0.001
Emergency	90.5	95.1	
Planned	9.5	4.9	
Education			<0.001
Primary	40.3	54.3	
Secondary	45.2	37.5	
Tertiary	14.5	8.2	
Income (in 1000 NOK), *median (IQR)*			
All ages	228 (180 - 294)	173 (141 - 245)	<0.001
35-69 years	260 (201 - 343)	211 (164 - 270)	<0.001
70+ years	209 (172 - 263)	169 (136 - 213)	<0.001
Civil status, %			<0.001
Unmarried	11.1	9.0	
Married	51.2	41.1	
Widow/Widowed	24.1	41.9	
Divorced	13.6	8.0	
Readmissions due to HF	26.6	35.5	<0.001
HF hospitalization (days), *median (IQR)*	5 (3 - 9)	6 (3 - 11)	0.007
Medical conditions, %			
Atrial fibrillation	44.5	47.4	<0.001
Valvular heart disease	15.6	18.9	<0.001
Ischemic heart disease	34.9	34.3	0.209
Hypertension	31.3	24.3	<0.001
Diabetes mellitus	13.2	16.5	0.012
Renal failure	8.4	10.9	<0.001
Chronic obstructive pulmonary disease	9.0	13.7	<0.001
Neoplasms	2.7	6.7	<0.001
Anemia	3.4	5.6	<0.001
Thyroid disease	2.9	3.4	0.013
Mental disorders	1.9	2.2	0.572
Asthma	1.9	1.5	0.001
Pulmonary hypertension	2.1	2.2	0.554

* Information available for years 2010-2014

SD = standard deviation; IQR = interquartile range; HF = heart failure

Table S3. Deaths (per 100 000) among patients hospitalized with incident heart failure as opposed to those in the general population in Norway, 2001-2014 by sex and age group

Age group	Deaths (per 100 000)			
	In patients hospitalized with incident heart failure		In the general population	
	Men	Women	Men	Women
35 - 39 years	2 998	1 896	111	57
40 - 44 years	2 737	3 058	147	89
45 - 49 years	3 786	3 956	228	151
50 - 54 years	4 811	5 204	375	252
55 - 59 years	5 107	5 683	605	396
60 - 64 years	7 044	7 025	1 008	628
65 - 69 years	10 101	9 638	1 689	976
70 - 74 years	14 488	12 640	2 749	1 600
75 - 79 years	20 416	16 996	4 804	2 891
80 - 84 years	30 254	22 923	8 695	5 507
85 - 89 years	42 691	35 048	15 192	10 740
90 - 94 years	61 612	48 974	25 834	19 868

Table S4. Educational and income-related gradients in mortality among _unmarried_ women, hospitalized with incident heart failure in Norway, 2001-2014: the CVDNOR project

	Hazard ratio (95% CI)	
	35 - 69 years	70+ years
	Deaths / Population at risk (128 / 373)	Deaths / Population at risk (1201 / 1463)
Education		
Primary	1 reference	1 reference
Secondary	0.74 (0.50 - 1.11)	0.97 (0.84 - 1.09)
Tertiary	0.42 (0.18 - 0.99)	1.00 (0.81 - 1.24)
Income (I quintiles)		
1st quintile	1 reference	1 reference
2nd quintile	1.28 (0.68 - 2.41)	0.91 (0.72 - 1.15)
3d quintile	1.14 (0.62 - 2.13)	0.83 (0.66 - 1.05)
4th quintile	0.99 (0.51 - 1.91)	0.81 (0.65 - 1.02)
5th quintile	0.87 (0.41 - 1.84)	0.78 (0.62 - 0.99)

Model includes education, income, age (continuous variable), calendar year, civil status, atrial fibrillation, valvular heart disease, coronary heart disease, hypertension, diabetes mellitus, renal failure, chronic obstructive pulmonary disease, neoplasms, anemia and thyroid diseases.

CI = confidence interval.