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Risk factors on the development of new-onset gastroesophageal reflux symptoms : a population-based prospective cohort study : the HUNT study

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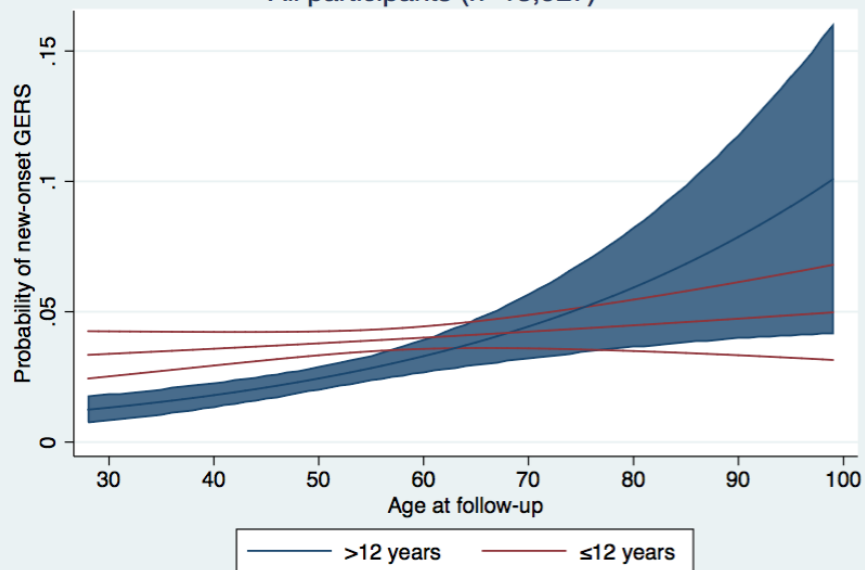
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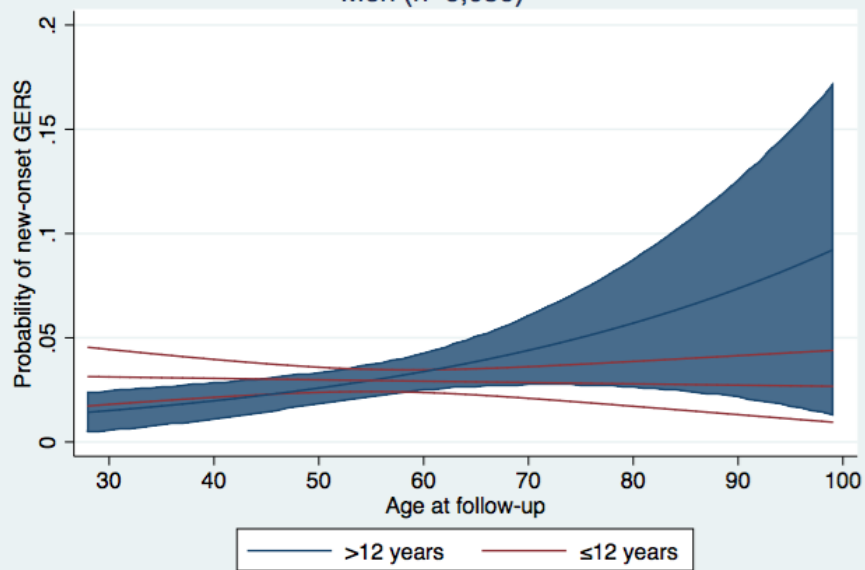
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All participants (n=13,927)

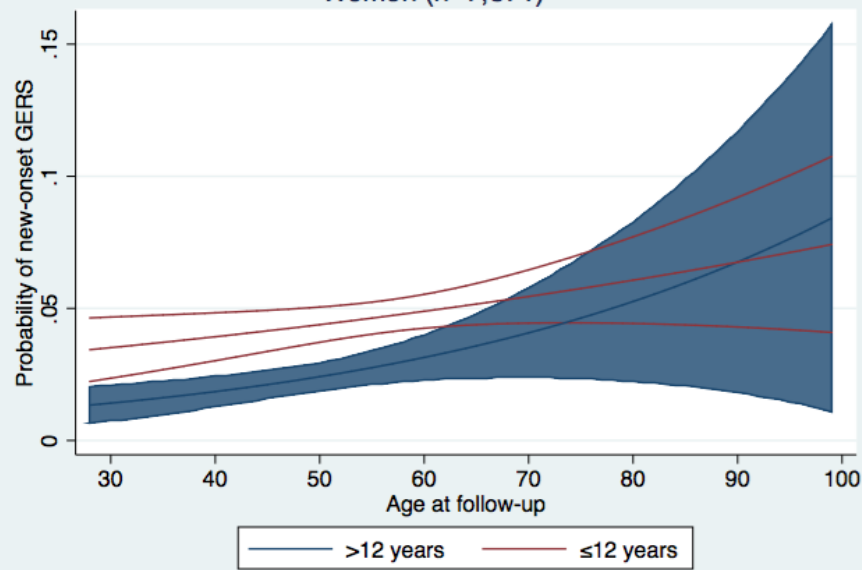


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Men (n=6,056)



Women (n=7,871)



Supplemental figure 1 Predictive margins with 95% confidence intervals (95%CI) for *education on new-onset gastroesophageal reflux disease (GERS)* at follow-up HUNT3/Mini-Q; adjusted for sex, change in BMI during follow-up, tobacco smoking, alcohol consumption and physical exercise.

Supplemental table 1 Crude and adjusted analyses providing odds ratios (OR) and 95% confidence interval (95%CI) for new-onset gastro-esophageal reflux symptoms (GERS)* compared to no GERS at follow-up‡, stratified by age and sex

Age <65 years	Crude			Adjusted #			Age <65 years	Crude			Adjusted #				
	New-onset GERS/All (%)	Odds ratio	(95% CI)	New-onset GERS/All (%)	Odds Ratio	95% CI		New-onset GERS/All (%)	Odds ratio	(95% CI)	New-onset GERS/All (%)	Odds Ratio	95% CI		
Women													Men		
Age (per year), follow-up	249/6,542 (3.8)	1.03	(1.01-1.04)	236/6,239 (3.8)	1.03	(1.01-1.04)		142/4,604 (3.1)	1.01	(0.99-1.03)	136/4,400 (3.1)	1.02	(1.00-1.04)		
BMI change, baseline - follow-up §															
Body Mass Index (kg/m2) (per unit)	<u>246/6,428 (3.8)</u>	1.32	(1.26-1.39)	236/6,239 (3.8)	1.33	(1.27-1.40)		<u>140/4,564 (3.1)</u>	1.27	(1.17-1.38)	136/4,400 (3.1)	1.26	(1.15-1.37)		
Missing, no. (%)	114 (1.7)							40 (0.9)							
Smoking status															
Never smokers	79/2,846 (2.8)	1.00	Reference	76/2,778 (2.7)	1.00	Reference		54/2,191 (2.5)	1.00	Reference	53/2,152 (2.5)	1.00	Reference		
Previous smokers (before baseline)	55/1,207 (4.6)	1.67	(1.18-2.38)	53/1,178 (4.5)	1.42	(0.98-2.07)		27/926(2.9)	1.19	(0.74-1.90)	25/908 (2.8)	1.01	(0.62-1.67)		
Quitters (between baseline and follow-up)	52/748 (7.0)	2.62	(1.83-3.75)	50/730(6.8)	1.69	(1.15-2.49)		24/472(5.1)	2.12	(1.30-3.47)	24/460 (5.2)	1.67	(1.00-2.80)		
Current smokers	<u>59/1,595 (3.7)</u>	1.35	(0.95-1.90)	57/1,553 (3.7)	1.19	(0.83-1.71)		<u>34/898 (3.8)</u>	1.56	(1.01-2.41)	34/880 (3.9)	1.45	(0.92-2.28)		
Missing, no. (%)	146 (2.2)							117 (2,5)							
Alcohol consumption, follow-up															
≤ Weekly	211/5,463 (3.9)	1.00	Reference	204/5,269 (3.9)	1.00	Reference		114/3,628 (3.1)	1.00	Reference	110/3,504 (3.1)	1.00	Reference		
> Weekly	<u>32/995 (3.2)</u>	0.83	(0.57-1.21)	32/970 (3.3)	0.89	(0.60-1.32)		<u>27/933 (2.9)</u>	0.92	(0.60-1.41)	26/896 (2.9)	0.92	(0.59-1.44)		
Missing, no. (%)	84 (1.3)							43 (0.9)							
Physical exercise, follow-up															
< Weekly	43/955 (4.5)	1.00	Reference	43/901 (4.8)	1.00	Reference		46/1,124 (4.1)	1.00	Reference	45/1,068 (4.2)	1.00	Reference		
≥ Weekly	<u>200/5,519 (3.6)</u>	0.80	(0.57-1.12)	193/5,338 (3.6)	0.97	(0.68-1.38)		<u>95/3,447 (2.8)</u>	0.66	(0.46-0.95)	91/3,332 (2.7)	0.73	(0.50-1.06)		
Missing, no. (%)	68 (1.0)							33 (0.7)							
Education, baseline															
Low (≤ 12 years)	176/3,359 (5.2)	1.00	Reference	168/3,208 (5.2)	1.00	Reference		92/2,749 (3.3)	1.00	Reference	90/2,636 (3.4)	1.00	Reference		
High (> 12 years)	<u>72/3,143 (2.3)</u>	0.42	(0.32-0.56)	68/3,031 (2.2)	0.50	(0.37-0.68)		<u>48/1,823 (2.6)</u>	0.78	(0.55-1.11)	46/1,764 (2.6)	0.89	(0.61-1.29)		
Missing, no. (%)	40 (0.6)							32 (0.7)							
Missing in adjusted model, no. (%)				303 (4.6)							204 (4.4)				

Age ≥65 years	Crude			Adjusted #			Age ≥65 years	Crude			Adjusted #		
	New-onset GERS/All (%)	Odds ratio	(95% CI)	New-onset GERS/All (%)	Odds Ratio	95% CI		New-onset GERS/All (%)	Odds ratio	(95% CI)	New-onset GERS/All (%)	Odds Ratio	95% CI
Women						Men							
Age (per year), follow-up	70/1,961 (3.6)	1.01	(0.98-1.05)	60/1,632 (3.7)	1.03	(0.99-1.07)	49/1,809 (2.7)	1.02	(0.98-1.07)	42/1,656 (2.5)	1.03	(0.98-1.08)	
BMI change, baseline - follow-up §													
Body Mass Index (kg/m2) (per unit)	<u>69/1,908 (3.6)</u>	1.31	(1.19-1.44)	60/1,632 (3.7)	1.32	(1.19-1.47)	<u>48/1,781 (2.7)</u>	1.15	(1.00-1.33)	42/1,656 (2.5)	1.12	(0.95-1.32)	
Missing	53 (2.7)						28 (1.5)						
Smoking status													
Never smokers	25/1,004 (2.5)	1.00	Reference	24/880 (2.7)	1.00	Reference	13/574 (2.3)	1.00	Reference	12/539 (2.2)	1.00	Reference	
Previous smokers (before baseline)	21/369 (5.7)	2.36	(1.31-4.28)	18/338 (5.3)	2.01	(1.06-3.83)	20/695 (2.9)	1.28	(0.63-2.59)	18/657 (2.7)	1.27	(0.60-2.70)	
Quitters (between baseline and follow-up)	9/171 (5.3)	2.18	(1.00-4.75)	8/148 (4)	1.39	(0.58-3.31)	9/194 (4.6)	2.10	(0.88-4.99)	9/179 (5.0)	2.21	(0.89-5.49)	
Current smokers	<u>11/309 (3.6)</u>	1.45	(0.70-2.97)	10/266 (3.8)	1.60	(0.73-3.48)	<u>5/297 (1.7)</u>	0.74	(0.26-2.09)	3/281 (1.1)	0.57	(0.16-2.06)	
Missing, no. (%)	108 (5.5)						49 (2.7)						
Alcohol consumption, follow-up													
≤ Weekly	60/1,651 (3.6)	1.00	Reference	53/1,435 (3.7)	1.00	Reference	42/1,467 (2.9)	1.00	Reference	36/1,351 (2.7)	1.00	Reference	
> Weekly	<u>7/213 (3.3)</u>	0.90	(0.41-2.00)	7/197 (3.6)	1.02	(0.44-2.37)	<u>7/318 (2.2)</u>	0.76	(0.34-1.72)	6/305 (2.0)	0.66	(0.27-1.62)	
Missing, no. (%)	97 (4.9)						24 (1.3)						
Physical exercise, follow-up													
< Weekly	22/397 (5.5)	1.00	Reference	20/306 (6.5)	1.00	Reference	7/365 (1.9)	1.00	Reference	5/326 (1.5)	1.00	Reference	
≥ Weekly	<u>45/1,492 (3.0)</u>	0.53	(0.31-0.89)	40/1,326 (3.0)	0.52	(0.29-0.93)	<u>42/1,417 (3.0)</u>	1.56	(0.70-3.51)	37/1,330 (2.8)	1.77	(0.68-4.62)	
Missing, no. (%)	72 (3.7)						27 (1.5)						
Education, baseline													
Low (≤ 12 years)	55/1,542 (3.6)	1.00	Reference	51/1,327 (3.8)	1.00	Reference	30/1,337 (2.2)	1.00	Reference	28/1,253 (2.2)	1.00	Reference	
High (> 12 years)	<u>10/323 (3.1)</u>	0.86	(0.44-1.71)	9/305 (3.0)	0.94	(0.44-1.99)	<u>15/422 (3.6)</u>	1.61	(0.86-3.01)	14/403 (3.5)	1.68	(0.86-3.31)	
Missing, no. (%)	96 (4.9)						50 (2.8)						
Missing in adjusted model, no. (%)				329 (16.8)						153 (8.5)			

*GERS: self-reported degree of complaints with heartburn or acid regurgitation during the previous 12 months; New-onset GERS: no GERS at baseline, severe GERS at follow-up; No GERS: no GERS at baseline, no GERS at follow-up

‡Baseline: HUNT2 (1995–1997); Follow-up: HUNT3/Mini-Q (2006–2009)

#Model adjusted age, BMI change, tobacco smoking, alcohol consumption, physical exercise and education

§Change in body mass index (kg/m2) between baseline HUNT2 and follow-up HUNT3/Mini-Q