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Marital status, education, and income in relation to the risk of esophageal and gastric cancer by histological type and site

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Title: Marital status, education and income in relation to risk of oesophageal and gastric cancer by histological type and site

Running head: Socio-economic factors and oesophago-gastric cancer

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Abstract

Background: Marital status, income, and education might influence risk of oesophageal and gastric cancer, but the literature is limited. We aimed to clarify these associations in a large study addressing subtypes of these tumours.

Methods: A nationwide Swedish population-based cohort study from 1991-2010 included individuals aged ≥50 years. Data on exposures, covariates and outcomes were obtained from well-maintained registers. We analysed four oesophago-gastric tumour subtypes combined and separately, i.e. oesophageal adenocarcinoma, oesophageal squamous-cell carcinoma, cardia adenocarcinoma, and non-cardia gastric adenocarcinoma. Poisson regression was used to estimate incidence rate ratios (IRR) and 95% confidence intervals (CI). Analyses were stratified by sex and adjusted for confounders.

Results: Among 4,734,227 participants (60,634,007 person-years) 24,095 developed oesophageal or gastric cancer. Compared to individuals in a long marriage, increased IRRs were found among participants in a shorter marriage, never-married, re-married, divorced or widowed. These associations were indicated for each tumour subtype, but were generally stronger for oesophageal squamous-cell carcinoma. Higher education and income were associated with decreased IRRs in a seemingly dose-response manner, and similar for each subtype. Compared to participants completing only primary school, having higher tertiary education rendered an IRR=0.64 (95%CI 0.60-0.69) in men and an IRR=0.68 (95%CI 0.61-0.75) in women. Comparing participants in the highest and lowest income brackets (highest 20% compared to the lowest 20%) revealed an IRR=0.74 (95%CI 0.70-0.79) in men and an IRR=0.83 (95%CI 0.76-0.91) in women.

Conclusions: Divorce, widowhood, living alone, low education and low income increase the risk of each subtype of oesophageal and gastric cancer. These associations require attention when identifying high-risk individuals.

Key messages

- This large-scale cohort study indicates that divorce, widowhood, and living alone increase the risk of each subtype of oesophago-gastric cancer.
- Low income increases the risk of each subtype of oesophago-gastric cancer.
- Low education increases the risk of each subtype of oesophago-gastric cancer.
- These associations can help identify individuals at high-risk of oesophago-gastric cancer.

Introduction

Oesophageal and gastric cancers (oesophago-gastric cancer) are among the most common and deadliest malignancies globally.[1] Four tumour subtypes can be identified based on differences in location, histology, incidence and aetiology: 1) oesophageal adenocarcinoma, characterised by a rapidly increasing incidence and associated mainly with gastro-oesophageal reflux and obesity;[2] 2) oesophageal squamous cell carcinoma, distinguished by a decreasing incidence and associated with tobacco smoking and high alcohol consumption;[3] 3) cardia adenocarcinoma, with an incidence and aetiology similar to oesophageal adenocarcinoma;[2] and 4) non-cardia gastric adenocarcinoma, identified by a decreasing incidence and a causal association with Helicobacter pylori-infection.[4] Despite major differences in incidence trends and aetiology, the association with social and economic factors seems to be more similar between these subtypes. Previous research indicates that individuals who do not have a partner, who have divorced, have low incomes and have low educational attainment might be at an increased risk of each subtype of oesophago-gastric cancer.[5-11] However, the existing literature on these topics is limited, contradictory and most studies have been too small to provide a satisfactory statistical power. The largest study by far to date was also from Sweden, but it was limited by the use of cause-specific cancer death as a proxy for incidence data, and a lack of information on histological type of tumour.[10] With the aim of providing valid knowledge on the associations between the social and economic factors marital status (never-married, married, re-married, divorced, and widowed), education and income in relation to risk of oesophago-gastric cancer, we conducted a nationwide Swedish study of the incidence of each of the four subtypes of these tumours.

Methods

Study design

We conducted a population-based cohort study from 1991 to 2010, including all men and women residing in Sweden on 31st December 1990 without a previous record of any oesophago-gastric cancer in the Swedish Cancer Register. Individuals aged 50 years or older were entered into the study on the 1st January 1991, while those below the age of 50 years were entered into the study the year in which they turned 50. All cohort members where followed up for a newly diagnosed oesophago-gastric cancer until 31st December 2010 and censored for migration, death, or end of study period. Data were obtained from national registers onto which registration is mandatory.

Data sources

The Swedish Cancer Registry was set up in 1958, and since then every clinician, pathologist and cytologist in Sweden has been required to notify the registry of every person diagnosed with a new primary malignancy and certain benign tumours. The recording of each of the four subtypes of oesophago-gastric cancer has been assessed in large validation studies, showing at least 98% overall completeness and 100% histological confirmation.[12, 13]

The Total Population Register contains individual characteristics on all legal residents in Sweden since 1968, including data on sex, date and place of birth, marital status, place of residence, and date of immigration and emigration.

The Longitudinal Integration Database for Health Insurance and Labour Market Studies (LISA) was established in 1990 and is annually updated with information on the highest

formal education level attained by each individual (collected from the Education Registry) and disposable income (collected from Income Tax Registry).

Exposures

Marital status was categorised into nine groups: 1) married for 15 years or more and never divorced, 2) married for less than 15 years and never divorced, 3) married for 15 years or more, but previously divorced, 4) married for less than 15 years, but previously divorced, 5) divorced for less than 5 years, 6) divorced for 5 years or more, 7) widowed for less than 5 years, 8) widowed for more than 5 years, or 9) never married.

Highest educational attainment was divided into five categories: 1) primary or less (up to 9 years of compulsory education), 2) lower secondary (secondary education focused on vocational training), 3) higher secondary (secondary education focused on theoretical training), 4) lower tertiary (university education of less than three years) and 5) higher tertiary (university education of three years or more).

Disposable income was a measure of household disposable income calculated as the sum of all household incomes after taxes and any monetary social benefits, adjusted for household composition with consumption weights in order to make it comparable in terms of individual purchase power. A household is defined as individuals living at the same residence and who are connected through marriage, partner registration, or co-habitation with common children. Individuals living together without common children and those who are not married or registered partners cannot be identified as belonging to the same household. For analysis, disposable income was divided into quintiles separately for each year.

Outcomes

The four subtypes of oesophago-gastric cancer were classified using the seventh edition of the International Classification of Diseases (ICD-7) with histological type classified according to WHO/HS/CANC/24.1. Oesophageal adenocarcinoma was defined by the ICD-7 code 150 and the pathology code 096, oesophageal squamous cell was defined by the ICD-7 code 150 and the pathology code 146, cardia adenocarcinoma was defined by the ICD-7 code 151.1 and the pathology code 096, and gastric adenocarcinoma was defined by the ICD-7 code 151 and the pathology code 096.

Statistical analysis

Poisson regression was used to estimate incidence rate ratios (IRR) and 95% confidence intervals (CI) of oesophago-gastric cancers for each category of marital status (reference group: married 15+ years and never divorced), education (reference group: higher secondary education), and disposable income (reference group: first quintile). We used data from December 31st of the year prior to each year of observation in the assessment of the study exposures. Analyses were stratified by sex and adjusted for age (continuous variable), healthcare region, and period of follow-up (derived by dividing the study period into 3-year groups), and mutually adjusted for marital status, education, and disposable income. The analysis was conducted using the statistical software STATA version 13 (College Station, TX, USA).

Ethical approval for the study was granted by the Regional Ethical Review Board, Stockholm, Sweden (2011/634-31/4).

Results

Participants

The final study cohort included 4 734 227 participants contributing 60 634 007 person-years at risk. During follow-up, 24 095 participants developed any oesophago-gastric cancer. Table 1 presents the distribution of categories of marital status (including divorce and widowhood), education and income in male and female patients in the entire oesophago-gastric cancer group of patients and in the four separate subtype groups of these tumours.

Marital status

Individuals who had been married for at least 15 years and had never been divorced were used as the reference category in all analyses of marital status. Increased IRRs of oesophago-gastric cancer were found among people in a shorter marriage (men IRR 1.20, 95% CI 1.03-1.40; women IRR 1.40, 95% CI 1.05-1.84) or re-married after a previous divorce (men IRR 1.35, 95% CI 1.23-1.48; women IRR 1.75, 95%CI 1.51-2.03), and these associations were indicated for each of the subtypes of oesophago-gastric cancer (Table 2). Individuals of both sexes who had been divorced for more than 5 years and had not re-married had an increased IRR of oesophago-gastric cancer (men IRR 1.25, 95% CI 1.19-1.32; women IRR 1.23, 95% CI 1.14-1.31). This association was indicated for each of the cancer subtypes, but was particularly strong for oesophageal squamous-cell carcinoma (men IRR 2.31, 95% CI 2.06-2.59; women IRR 1.87, 95% CI 1.58-2.21). Individuals, particularly men, who had been widowed for at least 5 years were at an increased risk of oesophago-gastric cancer (men IRR 1.21, 95% CI 1.14-1.29, women IRR 1.11, 95% CI 1.05-1.18). Regarding the subtypes, stronger IRRs were found for oesophageal squamous cell carcinoma among both widows and widowers, whereas widows were not at any statistically significantly increased risk of

oesophageal adenocarcinoma or non-cardia gastric adenocarcinoma (Table 2). Individuals who had never been married were at a slightly increased IRR of oesophago-gastric cancer (men IRR 1.17, 95% CI 1.12-1.23; women IRR 1.16, 95% CI 1.06-1.26). This association was strong for oesophageal squamous cell carcinoma (men IRR 2.06, 95% CI 1.84-2.32, women IRR 1.75, 95% CI 1.43-2.16), moderate for oesophageal adenocarcinoma in both sexes and cardia adenocarcinoma in women, while no such association was found for cardia adenocarcinoma in men or for non-cardia adenocarcinoma in either sex (Table 2).

Education

Increased level of education was associated with decreased IRRs of oesophago-gastric cancer in a gradient-like manner in both sexes. Compared to people completing only primary school, higher tertiary education rendered a decreased IRR in both sexes (men IRR 0.64, 95% CI 0.60-0.69; women IRR 0.68, 95% CI 0.61-0.75). This association was similar for each of the four subtypes of oesophago-gastric cancer, and potentially stronger for gastric cancer (Table 2).

Income

A high quintile of income resulted in lower IRRs of oesophago-gastric cancer in both sexes but no differences in IRRs were found among the lowest three quintiles. Comparing participants in the highest quintile of income with the lowest revealed an IRR of 0.74 (95% CI 0.70-0.79) in men and an IRR of 0.83 (95% CI 0.76-0.91) in women. For oesophageal adenocarcinoma, oesophageal squamous cell carcinoma and cardia adenocarcinoma, the corresponding IRRs were statistically significant only in men, but were decreased in both sexes for non-cardia gastric adenocarcinoma (Table 2).

Discussion

This study shows clearly increased relative risks of oesophago-gastric cancer among individuals who have undergone divorce, never been married, become widows or widowers, and who have had a shorter education and have a lower income. These associations were indicated for each of the four subtypes of oesophago-gastric cancer, but the associations were strongest for oesophageal squamous cell carcinoma.

Main strengths of this study include the population-based cohort design, complete follow-up, and the large sample size. Other advantages are the availability of excellent data on exposures, cancer incidence, and tumour subtypes from complete and valid nationwide Swedish registers. Although we adjusted for several confounding factors, including mutually adjusting for each of the studied determinants, a weakness is that we did not have data on some potential confounders, including body-mass, tobacco smoking, alcohol consumption or dietary factors. These factors might well explain the associations found in this study, since they are associated with both the exposures and the outcomes (except for alcohol and adenocarcinoma of the oesophagus or cardia).[2, 3, 14, 15]

The findings of the present study provide support for the existing literature taken together.[5-11] The patterns of associations with dose-response characteristics are clearer in the present study, which might be due to the large sample size, facilitating subgroup analyses. Despite the shortcomings of our previous mortality-based study on this topic, the overall results are similar.[10] Research has shown that living with a partner improves well-being and health in general.[16] Divorce, widowhood or other reasons for living alone might increase the risk of adopting bad lifestyle habits, e.g. becoming obese, smoking or drinking heavily. This

interpretation gains support from the stronger associations with oesophageal squamous cell carcinoma, a tumour more strongly associated with heavy tobacco and alcohol use than other oesophago-gastric tumours. It is possible that a higher educational level makes people more health conscious and that higher income makes it easier to adopt a healthier lifestyle, e.g. regarding dietary habits and physical exercise.[17-19] However, the similar associations between the study exposures and each of the four subtypes of oesophago-gastric cancer despite very different aetiologies indicate that these exposures might also exert their effects by other yet unknown mechanisms.[20] Immunological factors might for example be influenced by adverse family events.[21]

In conclusion, this large-scale and population-based cohort study shows an increased risk of oesophago-gastric cancers associated with the status of being non-married and having low education and low income. Despite the differences in incidence trends and other risk factors, these associations are seemingly similar between the four subtypes of oesophago-gastric cancer. The associations require attention in terms of identifying high-risk individuals for these aggressive tumours.

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Table 1. Marital status, education and income among patients (N) with oesophageal or gastric cancer (All), oesophageal adenocarcinoma (OAC), oesophageal squamous cell carcinoma (OSSC), cardia adenocarcinoma (Cardia) or non-cardia gastric cancer (Gastric).

Men

	Person-years N (%) 28 626 954 (100)	All N (%) 15 629 (100)	OAC N (%) 2 225 (100)	OSSC N (%) 2 282 (100)	Cardia N (%) 2 775 (100)	Gastric N (%) 8 347 (100)
Marital status						
Married ≥15 years, never divorced	15 863 495 (55)	8 552 (55)	1 142 (51)	993 (44)	1 562 (56)	4 855 (58)
Married <15 years, never divorced	684 849 (2)	170 (1)	26 (1)	27 (1)	41 (1)	76 (1)
Married <15 years, previously divorced	1 094 799 (4)	366 (2)	64 (3)	58 (3)	79 (3)	165 (2)
Married ≥15 years, previously divorced	872 008 (3)	480 (3)	78 (4)	76 (3)	97 (3)	229 (3)
Divorced <5 years	605 824 (2)	152 (1)	24 (1)	29 (1)	31 (1)	68 (1)
Divorced ≥5 years	3 592 230 (13)	1 926 (12)	313 (14)	433 (19)	328 (12)	852 (10)
Widowed <5 years	697 994 (2)	706 (5)	84 (4)	77 (3)	118 (4)	427 (5)
Widowed ≥5 years	1 170 525 (4)	1291(8)	173 (8)	171 (7)	190 (7)	757 (9)
Never married	4 045 231 (14)	1 986 (13)	321 (14)	418 (18)	329 (12)	918 (11)
Highest achieved education level						
Primary	12 436 497 (43)	9 031 (58)	1 172 (53)	1 305 (57)	1 487 (54)	5 067 (61)
Lower secondary	6 475 482 (23)	3 108 (20)	467 (21)	470 (21)	565 (20)	1606 (19)
Higher secondary	4 117 930 (14)	1 810 (12)	302 (14)	273 (12)	365 (13)	870 (10)
Lower tertiary	2 246 663 (8)	734 (5)	117 (5)	99 (4)	163 (6)	355 (4)
Higher tertiary	3 350 383 (12)	946 (6)	167 (8)	135 (6)	195 (7)	449 (5)
Income						
Quintile 1	4 342 747 (15)	3 327 (21)	395 (18)	456 (20)	565 (20)	1 911 (23)
Quintile 2	4 627 892 (16)	3 626 (23)	497 (22)	542 (24)	601 (22)	1 986 (24)
Quintile 3	5 775 414 (20)	3 648 (23)	494 (22)	556 (24)	615 (22)	1 983 (24)
Quintile 4	6 626 914 (23)	2 814 (18)	451 (20)	424 (19)	546 (20)	1 393 (17)
Quintile 5	7 253 987 (25)	2 214 (14)	388 (17)	304 (13)	448 (16)	1 074 (13)

Women						
	Person-years N (%) 32 007 053 (100)	All N (%) 8 466 (100)	OAC N (%) 493 (100)	OSSC N (%) 1 249 (100)	Cardia N (%) 848 (100)	Gastric N (%) 5 876 (100)
Marital status						
Married ≥15 years, never divorced	14 812 600 (46)	3 111 (37)	168 (34)	395 (32)	298 (35)	2 250 (38)
Married <15 years, never divorced	399 717 (1)	50 (1)	5 (1)	7 (1)	7 (1)	31 (1)
Married <15 years, previously divorced	761 652 (2)	86 (1)	2 (0)	10 (1)	18 (2)	56 (1)
Married ≥15 years, previously divorced	736 218 (2)	187 (2)	11 (2)	34 (3)	20 (2)	122 (2)
Divorced <5 years	480 448 (2)	54 (1)	1 (0)	12 (1)	6 (1)	35 (1)
Divorced ≥5 years	4 714 430 (15)	1 149 (14)	69 (14)	227 (18)	109 (13)	744 (13)
Widowed <5 years	1 839 148 (6)	688 (8)	39 (8)	97 (8)	63 (7)	489 (8)
Widowed ≥5 years	5 354 685 (17)	2 491 (29)	148 (30)	349 (28)	250 (29)	1 744 (30)
Never married	2 908 154 (9)	650 (8)	50 (10)	118 (9)	77 (9)	405 (7)
Highest achieved education level						
Primary	14 674 371 (46)	5 336 (63)	297 (60)	737 (59)	484 (57)	3818 (65)
Lower secondary	9 590 514 (30)	2 130 (25)	137 (28)	330 (26)	238 (28)	1425 (24)
Higher secondary	1 743 234 (5)	256 (3)	13 (3)	58 (5)	28 (3)	157 (3)
Lower tertiary	2 653 251 (8)	333 (4)	17 (3)	51 (4)	48 (6)	217 (4)
Higher tertiary	3 345 683 (10)	411 (5)	29 (6)	73 (6)	50 (6)	259 (4)
Income						
Quintile 1	6 738 846 (21)	2 365 (28)	135 (27)	310 (25)	237 (28)	1 683 (29)
Quintile 2	7 244 316 (23)	2 566 (30)	157 (32)	391 (31)	240 (28)	1 778 (30)
Quintile 3	6 484 352 (20)	1 729 (20)	106 (22)	239 (19)	179 (21)	1 205 (21)
Quintile 4	6 019 515 (19)	1 036 (12)	53 (11)	174 (14)	96 (11)	713 (12)
Quintile 5	5 520 025 (17)	770 (9)	42 (9)	135 (11)	96 (11)	497 (8)

Table 2. Incidence rate ratio (IRR) with 95% confidence interval (95% CI) of oesophageal or gastric cancer (All), oesophageal adenocarcinoma (OAC), oesophageal squamous cell carcinoma (OSSC), cardia adenocarcinoma (Cardia) or non-cardia gastric adenocarcinoma (Gastric) depending on marital status, education and income.

Men

	All IRR (95% CI)*	OAC IRR (95% CI)*	OSSC IRR (95% CI)*	Cardia IRR (95% CI)*	Gastric IRR (95% CI)*
Marital status					
Married ≥15 years, never divorced	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Married 0-14 years, never divorced	1.20 (1.03-1.40)	1.05 (0.71-1.56)	1.43 (0.97-2.11)	1.30 (0.95-1.79)	1.15 (0.92-1.45)
Married 0-14 years, previously divorced	1.20 (1.08-1.33)	1.20 (0.93-1.55)	1.43 (1.09-1.87)	1.23 (0.98-1.55)	1.13 (0.97-1.32)
Married ≥15 years, previously divorced	1.35 (1.23-1.48)	1.19 (0.94-1.50)	1.77 (1.40-2.24)	1.36 (1.11-1.67)	1.30 (1.14-1.49)
Divorced 0-4 years	1.04 (0.89-1.22)	0.95 (0.63-1.43)	1.51 (1.04-2.19)	0.99 (0.69-1.41)	0.98 (0.77-1.25)
Divorced ≥5 years	1.25 (1.19-1.32)	1.26 (1.11-1.43)	2.31 (2.06-2.59)	1.11 (0.99-1.26)	1.06 (0.99-1.14)
Widowed 0-4 years	1.15 (1.07-1.25)	1.13 (0.90-1.41)	1.31 (1.04-1.66)	1.17 (0.97-1.42)	1.11 (1.00-1.22)
Widowed ≥5 years	1.21 (1.14-1.29)	1.33 (1.12-1.57)	1.71 (1.44-2.02)	1.10 (0.94-1.28)	1.12 (1.04-1.22)
Never married	1.17 (1.12-1.23)	1.29 (1.14-1.47)	2.06 (1.84-2.32)	1.02 (0.91-1.15)	0.99 (0.93-1.07)
Highest achieved education level					
Primary	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Lower secondary	0.92 (0.89-0.96)	0.91 (0.81-1.01)	0.93 (0.84-1.04)	0.95 (0.86-1.05)	0.92 (0.87-0.97)
Higher secondary	0.85 (0.80-0.89)	0.90 (0.79-1.03)	0.89 (0.78-1.02)	0.98 (0.87-1.11)	0.78 (0.72-0.84)
Lower tertiary	0.75 (0.69-0.81)	0.71 (0.58-0.86)	0.70 (0.57-0.87)	0.91 (0.77-1.07)	0.71 (0.64-0.79)
Higher tertiary	0.64 (0.60-0.69)	0.67 (0.56-0.79)	0.65 (0.54-0.79)	0.74 (0.63-0.87)	0.59 (0.54-0.66)
Income					
Quintile 1	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Quintile 2	1.00 (0.95-1.05)	1.10 (0.97-1.26)	1.03 (0.91-1.17)	0.97 (0.87-1.09)	0.99 (0.92-1.05)
Quintile 3	0.96 (0.91-1.00)	0.97 (0.85-1.11)	0.94 (0.83-1.07)	0.90 (0.80-1.02)	1.00 (0.93-1.06)
Quintile 4	0.87 (0.82-0.92)	0.96 (0.83-1.10)	0.77 (0.67-0.89)	0.88 (0.78-0.99)	0.89 (0.83-0.96)
Quintile 5	0.74 (0.70-0.79)	0.83 (0.71-0.97)	0.55 (0.47-0.65)	0.75 (0.65-0.86)	0.79 (0.73-0.86)

Women					
Marital status					
Married ≥15 years, never divorced	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Married 0-14 years, never divorced	1.40 (1.05-1.85)	2.45 (0.99-6.06)	1.47 (0.69-3.12)	1.83 (0.86-3.90)	1.24 (0.86-1.77)
Married 0-14 years, previously divorced	1.11 (0.89-1.37)	0.44 (0.11-1.79)	0.90 (0.48-1.69)	2.14 (1.32-3.47)	1.05 (0.80-1.37)
Married ≥15 years, previously divorced	1.75 (1.51-2.03)	1.62 (0.88-3.00)	2.21 (1.55-3.15)	1.73 (1.09-2.72)	1.68 (1.40-2.02)
Divorced 0-4 years	1.16 (0.88-1.52)	0.38 (0.05-2.71)	1.86 (1.04-3.31)	1.22 (0.54-2.76)	1.08 (0.77-1.51)
Divorced ≥5 years	1.23 (1.14-1.31)	1.19 (0.90-1.59)	1.87 (1.58-2.21)	1.19 (0.95-1.49)	1.12 (1.03-1.22)
Widowed 0-4 years	0.99 (0.91-1.08)	0.95 (0.66-1.36)	1.32 (1.05-1.65)	1.01 (0.76-1.33)	0.93 (0.84-1.03)
Widowed ≥5 years	1.11 (1.05-1.18)	1.03 (0.80-1.32)	1.58 (1.34-1.85)	1.27 (1.05-1.53)	1.02 (0.95-1.10)
Never married	1.16 (1.06-1.26)	1.51 (1.09-2.08)	1.75 (1.43-2.16)	1.42 (1.10-1.82)	0.99 (0.89-1.10)
Highest achieved education level					
Primary	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Lower secondary	0.90 (0.85-0.95)	0.96 (0.78-1.19)	0.92 (0.80-1.05)	1.05 (0.89-1.23)	0.87 (0.82-0.93)
Higher secondary	0.74 (0.65-0.84)	0.59 (0.34-1.04)	1.04 (0.79-1.37)	0.81 (0.55-1.20)	0.67 (0.57-0.79)
Lower tertiary	0.65 (0.58-0.73)	0.52 (0.31-0.86)	0.63 (0.47-0.84)	0.93 (0.68-1.27)	0.63 (0.55-0.73)
Higher tertiary	0.68 (0.61-0.75)	0.74 (0.49-1.11)	0.74 (0.57-0.95)	0.79 (0.58-1.09)	0.64 (0.56-0.73)
Income					
Quintile 1	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Quintile 2	1.00 (0.94-1.06)	1.11 (0.87-1.40)	1.06 (0.91-1.23)	0.93 (0.77-1.11)	0.99 (0.92-1.06)
Quintile 3	1.01 (0.95-1.08)	1.22 (0.93-1.59)	0.88 (0.74-1.05)	1.01 (0.83-1.24)	1.03 (0.95-1.11)
Quintile 4	0.90 (0.84-0.98)	0.94 (0.67-1.32)	0.90 (0.73-1.09)	0.77 (0.60-1.00)	0.93 (0.84-1.02)
Quintile 5	0.83 (0.76-0.91)	0.93 (0.64-1.36)	0.83 (0.66-1.03)	0.93 (0.71-1.22)	0.81 (0.73-0.91)

* Adjusted for age, calendar period, region of residence, marital status, education and income.