



## Rural–urban differences in health among youth in northern Sweden: an outcome-wide epidemiological approach

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### ABSTRACT

The aim of this research was to contribute knowledge about rural–urban differences in health among young northern Swedish women and men. This study was based on the 2014 “Health on Equal Terms” survey, distributed in the four northernmost counties of Sweden, with complementary information on areas of residence classified as rural, semi-urban and urban from total population registers. The analytical sample included 2,691 individuals who were selected using a probabilistic sampling method. Prevalence ratios were calculated in multivariable log-binomial regression analyses to measure the association between place of residence and nine outcomes covering three health dimensions (general, mental and lifestyle behaviours). The results indicated that daily smoking and being overweight were more common, while feelings of stress and psychological distress were less prevalent, among youths in rural as compared to urban areas. After including covariates, this pattern appeared stronger for young women, although the direction of the results also applied to young men, albeit without revealing significant differences. In conclusion, the findings from this study indicate that for youths – particularly young women – the rural setting may imply an increased risk of poor general health and lifestyle behaviours, while simultaneously playing a partially protective role for mental health.

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## Introduction

Youth is a central developmental life phase where being healthy is important in its own right [1] and where patterns for future health may be established [2]. To ensure good health and well-being of young people, the rural landscape comprises a unique and potentially challenging setting [3]. For example, rural areas often embrace a sense of cooperation and solidarity [4], but while strong social ties can be a basis for caring communities, this could also be a source of prejudice and social control [5]. In addition, many rural regions have for decades struggled with resource depletion and falling work opportunities – conditions that typically have been considered push-factors for youth out-migration, although the picture is often more complex [6]. When assessing discourses on and experiences of rural life, positive aspects such as e.g. collaboration and calmness generally appear less appealing to young people while downsides of e.g. constrain and control at the same time seem to be felt more strongly, especially among girls [5,7–9]. Based on the above notions, it is possible that rural youths – particularly young women – could be at greater risk of poor health- and lifestyle-related outcomes than urban youths. However, considering the concurrent benefits of rural life, it is also possible that they are to some extent healthier than their urban peers.

Ultimately, rural–urban constructs and settings may result in an uneven distribution of health among young people. However, while this issue has received attention in Australia [10,11], Canada [12–14] and the US [15–20], research on rural–urban inequalities in health and health behaviours remains scarce and fragmented on Swedish youth populations. For example, rural youths in Canada [13] and the US [15] seem to be more overweight than their peers living in urban areas. In addition, while depression appear less common in rural as compared to urban communities, neurotic disorders and drug abuse [12] as well as stress [14] seem to be equally prevalent in both settings in Canada. Furthermore, rates of suicide among youths tend to be higher in rural than urban areas [17], while the reverse prevails for suicidal ideation and suicide attempts in the US [18]. In terms of health behaviours, inequalities in alcohol and smoking seem to favour young urban Americans [19,20], while subsequent disparities for youths in Australia appear absent [11].

In the Swedish context, overweight has gradually increased from 22% in 2006 to 29% in 2016, with a higher general prevalence in young men (32%) than women (25%) [21]. However, the extent to which this health problem varies by place of residence has been assessed in only one study on young military men,

indicating a higher risk of being overweight in rural as compared to urban communities [22]. Furthermore, while the proportion of adolescents with several repeated psychosomatic symptoms has also grown, from 15% to 31% (boys) and 29% to 57% (girls) since the mid-1980s [23], rural–urban disparities in the prevalence of these complaints has been assessed only in one study. In this research, Östberg et al. [24] found that sleeping problems may be less common in rural as compared to urban areas. In terms of gaps in lifestyle risks and suicidal behaviours between rural and urban youths, this knowledge remains largely limited in Sweden to date.

To bridge this overarching knowledge gap, the current study aimed to examine rural–urban health differences among young men and women in northern Sweden using an “outcome-wide” approach [25]. Based on the idea that some exposures could shape different outcomes heterogeneously in adverse or beneficial ways, this strategy allows for the simultaneous assessment of inequalities between rural and urban areas across a broad range of health indicators.

## Materials and methods

### Setting

Northern Sweden comprises about 60% of the land area but only about 12% of the total population. With about five residents per square kilometre, this is a sparsely populated area where 80% of the 44 municipalities are classified as rural by the Swedish Association of Local Authorities and Regions [26]. This region is home to the Sámi population, which comprise approximately 20–40 000 individuals, and an increasing number of international migrants of which many are unaccompanied children and youth. The area has had a historical dependence on mining and forestry industries as well as a nationally high prevalence of cardiovascular diseases. The social and public health landscape thus differ from regions in the more populated south.

### Data source and study population

The data come from the 2014 cross-sectional population-based survey known as “Health on Equal Terms” (HET), distributed in the four northern-most counties of Sweden – Jämtland/Härjedalen, Västernorrland, Västerbotten and Norrbotten – by the respective county councils in partnership with the Public Health Agency of Sweden. The target population includes 16–84-year-old residents in either one of the four counties and with survey participants being selected using a two-stage complex probabilistic sampling method that makes the sample representative at municipal and county levels [27].

Participants aged 16–24 years were included in this study and the sample of this age group in 2014 comprised 2,726 individuals. After excluding participants classified as undernourished ( $n = 172$ ) and missing values, the analytical sample included 2,691 individuals (98.72% of the original sample). From the total population, about 50% answered the survey in each one of the counties.

All participants in the HET survey have given their informed consent for the data to be used for research purposes. The use of the HET survey in this study was reviewed and approved by the ethical committee at The Regional Ethical Review Board in Umeå (2015/134-31Ö).

## Measures

### Health outcomes

Taking an “outcome-wide” approach [25] and based on the idea that rurality could shape aspects of health heterogeneously in positive and negative ways as indicated by earlier research, nine indicators were identified according to three dimensions i) general health, ii) mental health and iii) lifestyle behaviours, to capture various aspects of youth health.

Self-rated health, dental health and being overweight were included under the dimension of general health. Self-rated health and self-rated dental health were assessed with the question “In general how would you rate your health today?” and “How is your dental health?” Responses were coded on a five-point Likert-scale from “1 = very good” to “5 = very bad”. The variables were dichotomised as good (very good and good = 0) and bad (moderate, bad and very bad = 1). Self-reported body mass index (BMI) was computed as weight (kg) divided by height in metres squared ( $m^2$ ). Participants were categorised as being overweight (= 1) based on the standard cut-off point of  $\geq 25$  kg/ $m^2$ . Those classified as undernourished ( $n = 172$ ) were excluded from the analysis.

Three variables were used to capture different aspects of mental health. Stress was coded based on the answer to the question “Do you feel stressed at present? By stressed, we mean a condition where you feel tense, restless, nervous, uneasy or unable to concentrate”. The answers “Not at all” and “To some extent”, were coded as zero and the answers “Quite a lot” and “Very much” as one. Psychological distress was measured by the 12-item version of the General Health Questionnaire (GHQ-12). We used the 0–0–1–1 scoring method recommended by the creators of the instrument (range 0–12), with psychological distress or “GHQ-caseness” defined as a scoring of three or higher (= 1) [28,29]. Suicidal thoughts were captured with the question “Have you, at

any time in the last 12 months, been in a situation where you have seriously considered taking your own life?" and dichotomised as no (= 0) or yes (once and more than once = 1).

Lifestyle variables included physical inactivity, daily smoking and risky alcohol consumption. The variable physical inactivity was coded based on the answer to the question "How much time do you spend in a normal week in moderately strenuous activities that make you warm?" Five options were given: "3–5 hours" and "Five hours or more a week" were coded as zero and "Not at all", "No more than one hour a week" and "Between one and three hours" as one. Daily smoking was coded based on the answer to the question "Do you smoke every day?" with questions applying to tobacco products such as cigarettes, cigarillos, cigars, pipe tobacco and snuff. "Yes" was coded as one and "No" as zero. High alcohol consumption was based on three questions that originate from the Alcohol Use Disorder Identification Test. Alcohol was defined as folk beer, medium/strong beer, alcoholic cider, wine, strong wine and spirits. The three included questions were: i) "How often have you been drinking alcohol in the past 12 months?" where the answer options were: four times/week or more (= 4); 2–3 times a week (= 3); 2–4 times/month (= 2); once a month or seldom (= 1); never (= 0); ii) "How many 'glasses' (see example) do you drink on a typical day when you drink alcohol?" and the alternatives were: 1–2 (= 0); 3–4 (= 1); 5–6 (= 2); 7–9 (= 3), 10 or more (= 4); Do not know (missing); iii) "How often do you drink six glasses or more on the same occasion?" The alternatives were: Daily or almost every day (= 4); every week (= 3); every month (= 2); more seldom than once a month (= 1); never (= 0). These questions were then summed up to an index ranging from 0 to 12. Scores higher than six for men and five for women were considered as a high alcohol consumption (= 1).

### Exposure

Place of residence at the municipal level was operationalised comprising three groups following the Swedish Association of Local Authorities and Regions classification [30]. This means that municipalities with a population of less than 10,000 inhabitants and a very low (less than 30%) commuting rate were defined as rural, areas with a population between 10–50,000 as semi-urban and more than 50,000 inhabitants as urban. Population data were extracted from Statistics Sweden for the year 2014.

### Covariates

Throughout the analyses, we included age, place of birth, occupation and economic status as covariates based on

their known or assumed relationship with both rurality and the different health outcomes. Age was coded into three groups (16–18, 19–21 and 22–24 years). Place of birth was defined as being born in Sweden, Europe or outside these regions (Africa, Asia and Latin America). Occupation was self-reported and classified into four groups: working, studying, unemployed or on sick leave and other. Economic status was assessed with two variables, cash margin and difficulties managing regular expenses. Cash margin was captured with the question of whether the participants could raise 15,000 SEK within one week or not (no = 1). Difficulties managing regular expenses during the last 12 months (difficulties to make ends meet) was dichotomised as: "not having difficulty" = 0 and "having difficulty once" or "having difficulties more than once" = 1.

### Statistical analysis

Frequency tables and percentages were used to present the descriptive characteristics of the population and the health outcomes according to place of residence. Bivariate analyses between place of residence and the nine different health outcomes were first carried out (Appendix 1). All covariates were then included and prevalence ratios (PR) calculated in multivariable log-binomial regression analyses with their 95% confidence intervals (95% CI) to get the relative risks. The Stata 14 software was used to conduct the analyses. Given potential differences by sex/gender across the health outcomes, all regression analyses were carried out separately for men and women.

### Results

Table 1 shows the sociodemographic characteristics of the population by type of municipality. More women than men participated in the study in all three settings and while age followed a similar distribution, more foreign-born youths were living in rural as compared with urban and semi-urban municipalities. The unemployment levels among youth were higher in semi-urban (11.15%) and rural (10.53%) municipalities and the economic situation measured by cash margin and difficulties to make ends meet were slightly worse among participants from rural areas. The prevalence of the different health outcomes according to place of residence and sex/gender are shown in Table 2. Overall, young men reported better self-rated health but worse dental health, with more being overweight than women. Men were better in all indicators of mental health, while regarding lifestyle factors both sex/genders were similar in physical activity and daily smoking but women were higher in alcohol consumption (Table 2).

**Table 1.** Population characteristics according to the place of residence, “Health on Equal Terms” survey, northern Sweden 2014 (n = 2,691).

	Urban (n = 698)	Semi-urban (n = 950)	Rural (n = 1043)
<b>Individual level variables</b>			
<b>Sex/gender</b>			
Men	42.84	43.68	42.28
Women	57.16	56.32	57.72
<b>Age</b>			
16–18	25.79	28.00	29.05
19–21	37.25	40.11	40.94
22–24	36.96	31.89	30.01
<b>Place of birth</b>			
Sweden	95.70	93.58	91.08
Europe	0.86	1.89	3.26
Other	3.44	4.53	5.66
<b>Occupational status</b>			
Working	22.43	22.73	24.37
Studying	57.45	52.38	52.63
Unemployed/on sick leave	6.95	11.15	10.53
Other	13.17	13.74	12.48
<b>Cash margin</b>			
Yes	68.49	62.66	60.89
No	31.51	37.34	39.11
<b>Difficulties making ends meet</b>			
No	84.54	85.35	81.14
Yes	15.46	14.65	18.86

**Table 2.** Health status by sex/gender and place of residence, “Health on Equal Terms” survey, northern Sweden 2014 (n = 2,726).

	Men			Women		
	Urban (n = 299)	Semi-urban (n = 415)	Rural (n = 441)	Urban (n = 399)	Semi-urban (n = 535)	Rural (n = 602)
<b>General health</b>						
<b>Self-rated health</b>						
Good	86.10	84.78	86.30	78.70	81.32	77.39
Bad	13.90	15.22	13.70	21.30	18.68	22.61
<b>Self-rated dental health</b>						
Good	76.45	80.98	77.37	87.72	82.53	82.96
Bad	23.55	19.02	22.63	12.28	17.47	17.04
<b>BMI</b>						
Normal	67.26	69.04	63.31	79.61	72.00	67.72
Overweight	32.74	30.96	36.69	20.39	28.00	32.28
<b>Mental health</b>						
<b>Stress</b>						
No	90.91	91.71	90.99	70.13	77.74	78.02
Yes	9.09	8.29	9.01	29.87	22.26	21.98
<b>GHQ-12</b>						
No	73.24	78.07	76.87	55.14	57.01	60.63
Yes	26.76	21.93	23.13	44.86	42.99	39.37
<b>Suicidal ideation</b>						
No	92.91	94.61	93.75	90.13	87.17	90.07
Yes	7.09	5.39	6.25	9.87	12.83	9.93
<b>Lifestyle behaviours</b>						
<b>Physical activity</b>						
Yes	63.97	59.12	60.05	62.56	62.26	60.13
No	36.03	40.88	39.95	37.44	37.74	39.87
<b>Daily smoking</b>						
No	95.29	93.98	93.36	97.24	94.00	92.17
Yes	4.71	6.02	6.64	2.76	6.00	7.83
<b>Alcohol consumption</b>						
Low	81.94	86.75	86.39	84.71	82.06	83.72
High	18.06	13.25	13.61	15.29	17.94	16.28

The adjusted prevalence ratio between place of residence and the nine health outcomes among young men and women are presented in Table 3. Among

men, no statistical differences were found between rural and urban areas for any of the nine health outcomes examined. Self-rated health and dental health,

**Table 3.** Prevalence ratio of place of residence and health outcomes adjusted for covariates in men and women, “Health on Equal Terms” survey, northern Sweden 2014\*.

MEN	Urban	Semi-urban	Rural
<b>General health</b>			
Self-rated health	1.00	1.10 (0.76–1.57)	0.98 (0.68, 1.42)
Self-rated dental health	1.00	0.80 (0.60, 1.07)	0.92 (0.71, 1.21)
Overweight	1.00	0.93 (0.74, 1.16)	1.13 (0.92, 1.39)
<b>Mental health</b>			
Stress	1.00	0.86 (0.52, 1.40)	0.84 (0.52, 1.34)
Psychosocial distress (GHQ12)	1.00	0.83 (0.65, 1.06)	0.86 (0.67, 1.08)
Suicide thoughts	1.00	0.72 (0.40, 1.30)	0.79 (0.45, 1.38)
<b>Lifestyle behaviours</b>			
Physical exercise	1.00	1.10 (0.91, 1.33)	1.09 (0.90, 1.32)
Daily smoking	1.00	1.32 (0.70, 2.54)	1.32 (0.70, 2.49)
Alcohol risk	1.00	0.76 (0.54, 1.07)	0.81 (0.58, 1.14)
WOMEN	Urban	Semi-Urban	Rural
<b>General health</b>			
Self-rated health	1.00	0.85 (0.66, 1.09)	0.99 (0.79, 1.25)
Self-rated dental health	1.00	1.36 (0.99, 1.87)	1.21 (0.88, 1.66)
Overweight	1.00	1.39 (1.09, 1.78)	1.59 (1.25, 2.01)
<b>Mental health</b>			
Stress	1.00	0.75 (0.60, 0.93)	0.72 (0.58, 0.89)
Psychosocial distress (GHQ12)	1.00	0.95 (0.82, 1.09)	0.85 (0.73, 0.98)
Suicide thoughts	1.00	1.19 (0.82, 1.73)	0.86 (0.59, 1.28)
<b>Lifestyle behaviours</b>			
Physical exercise	1.00	0.98 (0.83, 1.15)	1.02 (0.87, 1.19)
Daily smoking	1.00	2.06 (1.05, 4.03)	2.51 (1.31, 4.79)
Alcohol risk	1.00	1.18 (0.89, 1.58)	1.06 (0.79, 1.41)

\*adjusted for age, country of birth, occupation, cash margin, economic difficulties.

mental health outcomes and alcohol consumption were, however, lower among those living in rural municipalities.

Among young women, statistically significant rural–urban differences were observed regarding overweight, mental ill-health and daily smoking. Women living in rural municipalities had a higher prevalence of being overweight (PR = 1.59; 95% CI: 1.25, 2.01) and daily smoking (PR = 2.51; 95% CI: 1.31, 4.79) compared to those from urban areas. However, their levels of stress (PR = 0.72; 95% CI: 0.58, 0.89) and psychological distress were lower (PR = 0.85; 95% CI: 0.73, 0.98) compared to their urban peers.

## Discussion

The aim of this study was to contribute knowledge about rural–urban differences in health among young northern Swedish women and men. Using an “outcome-wide” approach where inequalities by municipal place of residence was estimated for several health indicators, the results paint an interesting and informative picture that can be useful for public health policy and practice. While no health disparities emerged across rural, semi-urban and urban areas for young men in either one of the three health dimensions (general, mental and lifestyle), inequalities appeared for young women in four out of the nine outcomes.

Specifically, compared with their urban peers, more rural and semi-urban girls were overweight and smoking on a daily basis but fewer felt stressed. The prevalence of psychosocial distress was also lower, but only when comparing young rural women with their urban counterparts. After including covariates, this pattern and direction of results applied also to young men, albeit without revealing significant differences.

Consistent with the international literature [13,15], we found that rural youths – especially young women – were more overweight than their peers living in urban areas. Building partly on the conception of rural life as boring and restricted in terms of e.g. opportunities for education and leisure [4], a number of behavioural, cultural and structural factors could account for this pattern. In the American context, Tai-Seale and Chandler [31] have put forward unhealthy food habits as resulting from a lack of access to or failure to comply with dietary recommendations and lower levels of exercise among rural residences as possible explanations. While Swedish reports partially confirm this view by suggesting that rural dwellers eat less fruit and vegetables than their urban counterparts [32], at the same time it appear as if young people in rural communities are more physically active than their urban peers [33]. Besides following from differences in diet, it has also been hypothesised that disparities found in youth overweight could be partially attributed to norms of thinness that appear stronger in urban than in rural areas [22].

In line with previous research in the US [19,20], our results further indicated that daily smoking was more common among young people in rural as compared to urban communities. It has been suggested that youth smoking is shaped by a variety of social and personal influences as part of developmental trajectories that act similarly across countries and cultures [34]. Research in Sweden [35,36] has largely corroborated this multi-factorial explanation, suggesting that smoking play a role in ongoing socialization processes that are influenced by both attitudes and peer pressure. Based on this notion, it is possible that normative beliefs and behaviours, which may be more favourable towards tobacco use in rural areas, partially explain the rural–urban inequality in daily smoking among youth found in our study.

Furthermore, in contrast to earlier studies suggesting that rural and urban youths in Canada experience similar levels of stress [14], our results revealed a mental health disparity among young women to the disfavour of urban youth. Building on notions of the “rural idyll” and the “rural dull” [4], this inequality in stress and psychological distress could be partially accounted for by a greater sense of support, autonomy, stability and control experienced by young rural women [7,12]. However, while aspects of rural life may indeed play a partially protective role for mental



health, we believe the results could also reflect processes of selective migration. Considering that young rural “stayers” tend to experience life more positively than young rural “leavers” [5,7–9], rural youths in our sample may represent a selected group of people, for whom the benefits of rurality outweigh the downsides. In turn, the urban and semi-urban groups may not be exclusive to individuals born and raised in the city, but also include young people for whom the “rural dull” has become a push-factor for out-migration [9].

Based on the above notions, it is possible that we have underestimated the health consequences of rural life and thereby potentially overestimated the rural–urban gap, especially with regard to the mental health of young women. In addition, considering that sex/gender differences have been largely overlooked in research comparing the health of rural and urban youths [12,13,15,19,22], we have also been unable to assess if the lack of apparent health inequalities for young men is in line with or contrast to previous research. Forthcoming studies should thus explore the relationship between place of residence, health and migration decision processes in more detail to understand the disparity in youth health across rural and urban areas in Sweden.

In terms of interventions, approaches focusing on structural and normative changes could be a way to prevent youth smoking and overweight; but more specifically, it may be a consistent support from and close relations with caring and concerned adults that make the largest difference for weight control and tobacco use [31,35]. Importantly, to specifically reduce the gaps, these strategies need to be more pronounced in rural than urban areas. Similarly, initiatives to reduce school-related pressures and demands may be a solution to improve the mental health of young people overall [37], but to narrow the rural–urban disparity in stress and psychological distress found in this study, interventions need to be directed more strongly towards to urban youths. To this end, when looking at disparities by municipal place of residence for several health indicators from an “outcome-wide” perspective, this study provides useful information for prioritizations of policy decisions. Specifically, to reduce the overall rural–urban gap in youth health, the results suggests that public health policy and practice should focus on preventing smoking and overweight among young rural women and on promoting mental health among young urban woman.

### **Methodological considerations**

While the methodological strengths of this study include a population-based random sample and the combination of survey data with linked information on municipal area of

residence from high-quality total population registers, there are some inherent limitations to our study.

Firstly, the study was cross-sectional which not only prevents causal inferences, but also invites the possibility of bias as a result of a selective and systematic “sorting” of youths into residential areas as outlined above. As discussed by Hedman and van Ham [38], this issue implies more than a statistical error to be solved through sufficient confounder control, but involves an understanding of the circumstances influencing residential choices – information that was unfortunately not available to us.

Secondly, since the participation rate was around 50%, sampling bias may have affected the results. Due to the lack of available data on the sociodemographic characteristics of the population under study, we have been unable to explore the nature of this bias. However, it is likely that more disadvantaged youths such as those with very low income and severe mental disorders, may be underrepresented. Since the influence of this bias is unknown, the results should be interpreted with caution.

Thirdly, since the data were mainly self-reported, it is possible that the participants have answered the questions inaccurately because they feel the need to present themselves in a certain way. While this issue cannot easily be addressed, efforts made to protect the rights, privacy and integrity of the study participants during data collection could possibly have reduced the risk of such social desirability bias [39]. In addition, due to a lack of information on gender identity for those who classify themselves as non-binary, we were only able to assess how experiences vary between people categorised as either man or woman.

Lastly, while the outcomes were selected based on idea that rurality could shape aspects of health heterogeneously in adverse and beneficial ways as indicated by previous studies, the overall findings may be contingent upon the health dimensions and specific indicators included. However, by adopting an “outcome-wide” approach we have nevertheless comprehensively assessed the rural–urban gap in youth health without falling into the trap of finding isolated results for specific outcomes.

### **Conclusions**

Using an “outcome-wide” approach where differences by residential areas was estimated for several health indicators, this study provide a nuanced picture of rural–urban disparities in health among young northern Swedish women and men. The results suggest that for youths – especially young women – the rural composition and

setting may imply an increased risk of daily cigarette use and high BMI while at the same time offering protection against stress and psychological distress. Based on this notion, the current study provide some tentative guidance for policy prioritizations. Specifically, to reduce the more general rural–urban gap in youth health, the results indicate that interventions should focus on improving the mental health of urban youths and on preventing smoking and overweight among rural youths.

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## Appendix 1. Crude prevalence ratios of place of residence and health outcomes in men and women, “Health on Equal Terms” survey, northern Sweden 2014

MEN	Urban	Semi-Urban	Rural
<b>General health</b>			
Self-rated health	1.00	1.09 (0.76–1.57)	0.99 (0.68, 1.43)
Self-rated dental health	1.00	0.81 (0.61, 1.08)	0.96 (0.73, 1.26)
Overweight	1.00	0.95 (0.76, 1.18)	1.12 (0.91, 1.38)
<b>Mental health</b>			
Stress	1.00	0.91 (0.56, 1.48)	0.99 (0.62, 1.58)
Psychosocial distress (GHQ12)	1.00	0.82 (0.63, 1.06)	0.86 (0.67, 1.11)
Suicide thoughts	1.00	0.76 (0.43, 1.36)	0.88 (0.51, 1.53)
<b>Lifestyle behaviours</b>			
Physical exercise	1.00	1.13 (0.94, 1.37)	1.11 (0.92, 1.34)
Daily smoking	1.00	1.28 (0.68, 2.42)	1.41 (0.76, 2.62)
Alcohol risk	1.00	0.73 (0.52, 1.04)	0.75 (0.54, 1.06)
WOMEN	Urban	Semi-Urban	Rural
<b>General health</b>			
Self-rated health	1.00	0.88 (0.68, 1.14)	1.06 (0.84, 1.35)
Self-rated dental health	1.00	1.42 (1.03, 1.97)	1.39 (1.01, 1.91)
Overweight	1.00	1.37 (1.07, 1.76)	1.58 (1.25, 2.01)
<b>Mental health</b>			
Stress	1.00	0.75 (0.60, 0.93)	0.74 (0.59, 0.91)
Psychosocial distress (GHQ12)	1.00	0.96 (0.83, 1.11)	0.88 (0.76, 1.02)
Suicide thoughts	1.00	1.30 (0.90, 1.88)	1.01 (0.69, 1.48)
<b>Lifestyle behaviours</b>			
Physical exercise	1.00	1.01 (0.85, 1.19)	1.06 (0.91, 1.25)
Daily smoking	1.00	2.18 (1.11, 4.27)	2.84 (1.49, 5.41)
Alcohol risk	1.00	1.17 (0.88, 1.57)	1.06 (0.79, 1.43)