Life-style and self-rated global health in Sweden: A prospective analysis spanning three decades ☆

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ABSTRACT

Objective. To study the relations between lifestyle factors (smoking, drinking, exercise, vegetable consumption, social relations) and global self-rated health in the adult Swedish population.

Method. The data come from the Swedish Level of Living Survey, a face-to-face panel study. The analysis follows the respondents with good health in 1991 (N = 4035) and uses multivariate logistic regression to assess the relations between lifestyle factors in 1991 and health in 2000 and 2010.

Results. Baseline (1991) exercise, social support, smoking and vegetable consumption are associated with health in 2000 and/or 2010. 2000: Weekly exercise in 1991 increases the probability of good health by 6 percentage points [95% CI: 1–10] compared to no exercise, and smoking 10 or more cigarettes a day decreases the probability of good health by 5 percentage points [95% CI 1–8]. Lacking social support decreases the probability of good health by 17 percentage points (95% CI: 9–25). 2010: Smoking 10 or more cigarettes a day decreases the probability of good health by 10 percentage points [95% CI 5–15], and eating vegetables every day increases the probability of good health by 4 percentage points [95% CI 0.2–7].

Conclusions. Exercise, smoking, social support and vegetable consumption are related to self-rated health 2000 and/or 2010.

Introduction

Many aspects of our lifestyles can affect health. A large body of research suggests effects on mortality of lifestyle factors such as smoking, drinking, exercise and diet (e.g., Ames et al., 1995; Danaei et al., 2011; Doll et al., 2004; Ford et al., 2012; Khaw et al., 2008; Loef and Walach, 2012; Myers et al., 2002; Paffenbarger et al., 1993; Peto et al., 1996; Sasco et al., 2004; Thun et al., 1997), as well as social relations (Berkman and Syme, 1979; House et al., 1988). Associations between life-style and self-rated health have also been reported (e.g., Darviri et al., 2011; Kwaśniewska et al., 2007; Manderbacka et al., 1999; Molarius et al., 2007; Phillips et al., 2005; Schulz et al., 1994; Södergren et al., 2008). While studies of mortality are prospective, studies of self-rated health are generally cross-sectional; rendering the causal status of associations unclear. For example, they can reflect reverse causality as people with bad health are less likely to exercise and to have an active social life.

This article aims to study self-rated health in a prospective design, exploiting the panel in the Swedish Level of Living Surveys 1991–2010.

The focus is on the long-term importance of life-style factors (drinking behaviour, smoking, vegetable intake, exercise and social relations) for changes in global self-rated health in the adult Swedish population.

Self-rated health should be seen as an important complement to more objective measures such as mortality or specific diagnoses, in that it gives primacy to people's own perception of health. Global self-rated health is related to other health variables but also has an independent relation to mortality when controlling for other health variables (Idler and Benyamini, 1997). Naturally, individual criteria for judging health status may vary, but it is quite possible that perceived health is more relevant for people's quality of life than health as measured by objective criteria. In addition, it is not self-evident how life-style effects on different health dimensions are reflected in and weighed into an effect on overall perceived health.

To the extent that self-ratings of health are based on the factors that affect mortality, we can expect positive effects of exercise, vegetable intake and social support/social relations, and negative effects of smoking. For the alcohol variable, the situation is unclear as effects appear to vary between different diagnoses (e.g., Corrao et al., 2004). A common finding is that abstainers have larger risk of coronary heart disease than moderate consumers, but the causality of this relation is contested (e.g., Filmore et al., 2007). Our variable can distinguish abstainers but not high consumers from moderate/low consumers, and as we don't know how different disease risks are reflected in self-rated health there are no grounds for a specific hypothesis.

Methods

Study design and population

The Swedish Level of Living Survey has been collected in face-to-face interviews with a representative sample of the Swedish adult population (aged 18–75) in 1968, 1974, 1981, 1991, 2000 and 2010. The major part of the survey is a panel, with respondents followed through all successive waves (up to age 75), but new respondents are added at each wave for the sample to represent the population. This article uses the 1991 sample, following respondents in 2000 and 2010. The 1991 survey had a response rate of 79% (N = 5306), of which 71% (N = 3763) remained in 2000 and 55% (N = 2941) in 2010. Part of the attrition is naturally caused by panel ageing.

In the analyses, respondents reporting good self-rated health in 1991 are selected (77%, N = 4091). In this group, 76% (N = 3089) remained in 2000 and 62% (N = 2540) in 2010. Missing values on any variables in the regression give final analytical samples of N = 3043 (74%) in 2000 and N = 2210 (54%) in 2010.

With panel data, we can study changes in health, which improves our possibilities for causal conclusions. Only those with good health in 1991 are studied, as the processes leading to improved health probably differ from those leading to health deterioration. People with less than good health in 1991 are too few to study separately, and are therefore excluded. The focus of this article is thus whether lifestyle affects the probability of maintaining good health over the next 10–20 years. Respondents' self-rated health need not be the same in 2000 and 2010, but the sample size restricts us from distinguishing the effects on the combination of values in 2000/2010.

The selection ensures that respondents do not initially differ in self-rated health, but there is still a risk that those with certain life-style behaviour differ in other health-related characteristics that increase the risk of future ill-health. The analyses therefore control for potential confounders, detailed below in the Control variables section. These are factors that might affect both lifestyle in 1991 and later health. As factors occurring after 1991 cannot affect health in 1991, control variables are measured in 1991, except for education which is measured during the outcome year (2000/2010) as the youngest respondents have not finished their education in 1991. One control variable measures self-reported ill-health symptoms in 1991, which enables the adjustment for initial differences in health that are not captured by the global health measure.

Measures

Self-rated health

Respondents were asked: "How do you judge your own general health? Is it … 1 good, 2 bad or 3 something in-between?" Those responding "bad" are too few to analyse separately, so option 1 was coded 1 (good) and options 2 and 3 were coded 0 (not good).

Exercise

The question was "Do you pursue any sports, outdoor or exercise activities, e.g. long walks?", with the response categories: (1) yes, several times a week; (2) yes, about once a week; (3) yes, 1–3 times a month; (4) yes, but more seldom; and (5) no, never. Options 1 and 2 were recoded to "every week" (1) and options 3–5 to "more seldom" (0).

Vegetable consumption

Respondents were asked: "How often do you include fresh vegetables in your meals?" with the response categories: (1) in every meal, (2) in at least one meal a day, (3) almost every day, (4) once or twice a week, and (5) almost never. Options 1 and 2 were coded into 1 (every day) and all other options to 0.

Drinking behaviour

Respondents were asked: "Do you at any time drink wine, strong beer or liquor? If yes: Is it usually more than a glass or two?", and response categories were: 0 (never), 1 (yes, usually not more than a glass or two), and 2 (yes, usually more than a glass or two).

Smoking

The question was: "Do you smoke?" with response alternatives: (1) Yes, but less than 10 cigarettes or equivalent per day; (2) yes, 10 or more cigarettes or equivalent per day; (3) no, have given it up and (4) no, have never started. The responses were coded 0 (never), 1 (have given it up), 2 (less than 10 a day), and 3 (10 or more a day).

Social relations

Respondents were asked whether they, in their free-time (1) visit friends and acquaintances, (2) have friends and acquaintances visit, (3) visit relatives and (4) have relatives visit. For each of these questions, the response categories are: (A) No, (B) yes, sometimes, and (C) yes, often. Two variables were constructed: *meets friends often*, coded 1 if one sees friends often (response C to either 1 or 2) and 0 otherwise; and *meets family often*, coded 1 if one sees family often (response C to either 3 or 4) and 0 otherwise.

Social support

The question was: "One is sometimes in need of help and support from someone. Do you have any relative or close friend who is there for you … if you (1) fall ill? (2) need company? or (3) need someone to talk to about personal problems?", with answer categories being: (A) yes and (B) no, on each of

Table 1
Descriptive statistics, respondents with good subjective health in 1991, observed in (a) 1991 and 2000 and (b) 1991 and 2010.
Source: Swedish Level of Living Survey 1991, 2000, 2010.

		1991–2000 N = 3089 (Analysis sample N = 3043)		1991–2010 N = 2540 (Analysis sample N = 2210)	
		N	Percent	N	Percent
Subjective health 2000	Good	2507	80.1		
	Not good	581	19.9		
	Total	3088	100.0		
Subjective health 2010	Good			1790	79.7
	Not good			455	20.3
	Total			2245	
Vegetables at least once a day 1991	Yes	1834	59.4	1532	60.3
	No	1255	40.6	1008	39.7
	Total	3089	100.0	2540	100.0
Smoking 1991	Never	1506	48.8	1257	49.5
	Have smoked	704	22.8	559	22.0
	Smokes < 10/day	340	11.0	283	11.1
	Smokes 10+/day	539	17.5	441	17.3
	Total	3089	100.0	2540	100.0
Alcohol 1991	Never	263	8.5	194	7.7
	Usually 1–2 drinks	1321	42.8	1055	41.6
	Usually >2 drinks	1500	48.6	1287	50.8
	Total	3084	100.0	2536	100.0
Exercise 1991	Never	319	10.3	250	9.8
	Rarely	251	8.1	211	8.3
	1–3 times/month	262	8.5	220	8.7
	At least once/week	2257	73.2	1859	73.2
	Total	3089	100.0	2540	100.0
Social support 1991	Yes	2959	95.8	2443	96.2
	No	130	4.2	96	3.8
	Total	3089	100.0	2539	100.0
Frequent friend interaction 1991	Yes	1669	54.0	1418	55.8
	No	1420	46.0	1122	44.2
	Total	3089	100.0	2540	100.0
Frequent family interaction 1991	Yes	1630	52.8	1203	47.4
	No	1459	47.2	1337	52.6
	Total	3089	100.0	2540	100.0
Gender	Man	1572	50.9	1294	50.9
	Woman	1517	49.1	1246	49.1
	Total	3089	100.0	2540	100.0
BMI 1991	<25	2206	71.7	1895	74.9
	25 or over	873	28.3	636	25.1
	Total	3079	100.0	2531	100.0
Single household 1991	Yes	937	30.3	804	31.6
	No	2152	69.7	1736	69.4
	Total	3089	100.0	2540	100.0
		Mean	Std dev	Mean	Std dev
Symptom index 1991 (2000 N = 3062, 2010 N = 2514)		5.1	4.0	5.2	4.1
Age in 1991 (2000 N = 3089, 2010 N = 2540)		38.3	12.8	35.7	10.7
Income 1991 (SEK) (2000 N = 3089, 2010 N = 2540)		86621	31794	84505	30032
Education (years) in 2000 (N = 3089)/2010 (N = 2540)		12.3	3.5	12.9	3.4