



Social differences in who receives questions and advice about smoking habits when visiting primary care – Results from a population based study in Sweden in 2012

Anu Molarius^{a,b,*}, Mats Hellstrand^a, Sevek Engström^{a,c}

^a Competence Centre for Health, Västmanland County Council, Västerås, Sweden

^b Department of Public Health Sciences, Karlstad University, Karlstad, Sweden

^c Department of Public Health and Caring Sciences, Family Medicine and Preventive Medicine, Uppsala University, Uppsala, Sweden

ARTICLE INFO

Article history:

Received 27 September 2016

Received in revised form 5 December 2016

Accepted 17 December 2016

Available online 23 December 2016

Keywords:

Socioeconomic factors

Smoking

Primary care

Population studies

Sweden

ABSTRACT

The aim of this study was to examine whether there are social disparities in who receives questions and advice on smoking habits when visiting primary care and whether these disparities can be explained by differences in smoking habits. The study is based on 30,188 individuals aged 16–84 years who responded to a population survey questionnaire in 2012 in four counties in mid-Sweden (response rate 51%). Multivariate logistic regression models were used in statistical analyses. A total of 32% of those who visited a health care centre during the last three months reported that they were asked about their smoking habits during their latest visit, 6% received advice. In general, daily smokers received more often questions, and especially advice, than non-smokers. Persons with low education received more advice than persons with high education due to higher smoking prevalence. However, persons on disability pension and the unemployed were less frequently asked about their smoking habits than employees even though they smoke more. Women received less often questions and advice than men. Persons born outside the Nordic countries received advice twice as often as native Swedes regardless of whether they were daily smokers or not. In Sweden, those who are asked and, in particular, receive advice about changing their smoking habits while visiting primary care are mainly those who need it most. But the findings also imply that measures to reduce smoking should be intensified for women and are perhaps too intense for persons born outside the Nordic countries.

© 2017 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Lifestyle habits are important modifiable risk factors for common diseases, such as cardiovascular disease, diabetes and cancer, and are strongly related with future ill health. Smoking, alcohol, unhealthy diet and physical inactivity are estimated to contribute a fifth to the total burden of disease in Sweden (Ezzati et al., 2003; Agardh et al., 2008). Consequently, “a more health-promoting health care” is one of the main target areas for public health in Sweden (Proposition 2002/03:35, 2002). As a part of this, medical staff should, in the meeting with the patient, inform about the importance of healthy lifestyle habits. To further strengthen this effort the National Board for Health and Welfare published in 2011 the “National guidelines for disease prevention methods” (The National Board of Health and Welfare, 2011). The guidelines point out that the recommended measures are, in the long run, likely to lead to reduced costs in the healthcare system.

Of the unhealthy lifestyle habits, smoking has a strong association with e.g. heart disease, lung cancer, COPD and shortened life expectancy

(Doll et al., 2004; Dobson et al., 1996; Anon., 2004). Although the prevalence has decreased significantly in recent decades, just over one in ten adults in Sweden smoke every day, among both men and women (Danielsson et al., 2012). There are substantial social differences in daily smoking: smoking is more common, for example, among persons with lower education than among persons with higher education (Danielsson et al., 2012; Huisman et al., 2005). Moreover, smoking is one of the strongest factors contributing to the socioeconomic differences in health in Europe (Lim et al., 2012; Mackenbach et al., 2008).

Studies show that smoking cessation has positive health effects in the short term and gives very large health benefits in the long term in form of reduced risk for a number of diseases, quality of life and life years gained (Kenfield et al., 2008; Peto et al., 2000; Gilljam, 2012). However, fewer studies have investigated how preventive measures affect social differences in smoking (Main et al., 2008; Hill et al., 2014). In a review article, Brown et al. noted that untargeted individual smoking cessation interventions may have contributed to a reduction in smoking prevalence in Europe but probably also to growing social differences in smoking (Brown et al., 2014). Increasing socioeconomic differences in smoking prevalence have been reported from several European countries (Giskes et al., 2005; Hiscock et al., 2012a; Nagelhout et al., 2012). In Sweden, increasing socioeconomic differences have been reported

* Corresponding author at: Competence Centre for Health, Västmanland County Council, 721 89 Västerås, Sweden.

E-mail address: anu.molarius@ltv.se (A. Molarius).

for example from Västerbotten where a population based cardiovascular prevention program has been carried out since the 1990s (Norberg et al., 2011).

The smoking prevention recommendations included in the Swedish national guidelines for disease prevention methods are in line with the emphasis of the World Health Organization (WHO) on the responsibility of the healthcare systems of individual countries to provide treatment against tobacco use (World Health Organization, 2005). Evidence-based smoking cessation guidelines for health professionals have also been published in several other countries including the US, the UK, Australia and Taiwan (Fiore, 2008; West et al., 2000; Zwar et al., 2005; Chang et al., 2010). However, previous studies have shown that receiving smoking cessation advice varies e.g. by gender, age, socio-economic status and ethnicity (Chang et al., 2010; Denny et al., 2003; Danesh et al., 2014; Douglas and Szatkowski, 2013). In Sweden, the Swedish Association of Local Authorities and Regions has previously investigated, based on the national patient surveys in 2009 and 2010, the extent to which health care services are discussing lifestyle habits (Swedish Association of Local Authorities and Regions, 2011). They found that this proportion differed between counties/regions, between men and women and between persons with different levels of education. But how much of these differences were due to unhealthy lifestyle habits could not be answered on the basis of the material. Even another public health report indicated differences between counties on the basis of the national patient surveys conducted in 2011 and 2013 but the social differences were not investigated (The National Board of Health and Welfare, 2014).

The aim of this study was to investigate whether there are social disparities in who receives questions and advice about lifestyle habits while visiting primary care in Sweden, with a special focus on smoking habits. An additional aim was to investigate whether these disparities can be explained by differences in smoking habits.

2. Material and methods

This study is based on a population health survey which was carried out in collaboration with the Public Health Institute (now the Public Health Agency of Sweden) and four counties (Uppsala, Sörmland, Västmanland and Örebro) in 2012. In total, the survey questionnaire was sent to a random sample of almost 60,000 persons aged 16–84 years in these four counties, of which 30,188 (51%) responded.

In this study, the proportions who received questions (yes/no) and advice (yes/no) about diet, physical activity, smoking, snuff use and alcohol habits during the past three months while visiting a health care centre were calculated. In total, approximately 50% of the respondents (15,436 persons) answered to the questions if they had received questions and advice about lifestyle factors i.e. they had visited a health care centre during the last three months.

The data on gender, age, county, educational level and country of birth are based on register data from Statistics Sweden. Levels of education were categorised into compulsory school or equivalent education for nine years or less, secondary education (10–12 years of education), and post-secondary education (>12 years of education). Country of birth was categorised into those born in Sweden, in other Nordic countries, and outside Nordic countries. Employment status was derived from a survey question about whether the respondent was employed (including self-employed), student, unemployed, on sickness leave (>3 months), on disability pension or retired. Smoking habits were derived from the questionnaire and dichotomised into cigarette smoking daily and not daily.

The respondents gave their informed consent for applying the registry data by answering the questionnaire. After the record linkage, all identity information were removed before the material was handed over from Statistics Sweden to the county councils. Permission from the ethical review board in Uppsala has been obtained (EPN 2012/256).

2.1. Statistical methods

Smoking habits among the respondents and receiving questions and advice about smoking habits among those who attended primary care are reported by gender, age, county, educational level, country of birth and employment status. Since many of the investigated socio-demographic factors are associated with each other, we also performed in-depth analyses in the form of multivariate logistic regression models. The outcomes were: if one received questions about smoking habits and if one received advice to change smoking habits. The first model included gender, age, county, educational level, country of birth and employment status as independent variables. In order to take into account differences in the proportion of daily smokers between groups, we introduced daily smoking in the next step in the regression model. The results are reported as odds ratios (ORs) and 95% confidence intervals (95% CI) for the outcomes. SPSS, version 20, was used for all analyses.

3. Results

Almost a third of those who visited a health care centre reported in 2012 that they had been asked about their smoking or physical activity habits (Table 1). About one in five indicated they had been asked about snuff use, alcohol habits or dietary habits. Although many were asked about their lifestyle habits there was a relatively low proportion (3–14%) who answered that they received some advice on how to change their behaviour. It was most common to receive advice about changing physical activity and dietary habits.

In total, the proportion of daily smokers was 12% among women and 11% among men in this study (Table 2). The proportion of daily smokers was higher among those aged 50–64 years than in other age groups. Smoking was most common among persons on disability pension and the unemployed. Persons with compulsory and secondary education were daily smokers to a greater extent than persons with post-secondary education.

Among respondents who visited a primary care centre during the last three months, more men than women reported that they had received questions and advice about their smoking habits during their last visit (Table 2). The proportion of patients who were asked about their smoking habits was highest among young adults, and decreased with age. There were also differences in this proportion between the counties. Patients with post-secondary, secondary or compulsory education were asked about their smoking habits to the same degree, while the latter got more advice. Patients born outside the Nordic countries received most often questions and advice about their smoking habits. Patients on disability pension and the unemployed got advice to a greater extent than employees.

When the socio-demographic factors were examined simultaneously, the results broadly confirmed the results in Table 2. The proportion of respondents who received questions was lower in Örebro and Västmanland than in Uppsala County, but there was no difference in the proportion who received advice about changing their smoking habits between these counties (Table 3).

Once daily smoking was introduced into the regression models, it became apparent that the proportion who were asked about smoking

Table 1

Crude proportions (%) of being asked about lifestyle habits and being advised to change lifestyle habits among those who visited primary care during last three months in 2012, women and men aged 16–84 years.

Lifestyle habit	Asked	Advised
Dietary habits	20.6	9.8
Physical activity	30.8	13.6
Smoking habits	31.8	6.2
Snuff use	22.3	2.8
Alcohol habits	23.7	3.3

Table 2

The prevalence of daily smoking in the population and the proportion of patients who received questions and advice about their smoking habits during their last visit to a health care centre in 2012.

		N	Daily smoker (%)	N	Was asked about smoking (%)	Received advice about smoking (%)
Gender	Man	13984	11.0	6940	35.1	7.6
	Woman	16925	12.2	8496	29.0	5.1
Age group	16–34	5582	9.2	2587	40.1	5.8
	35–49	6102	10.8	2775	35.1	4.9
	50–64	8085	15.9	4029	34.5	8.4
	65–84	11140	10.2	6045	24.9	5.5
County	Uppsala	8424	10.4	4138	34.2	5.6
	Sörmland	7441	12.8	3733	34.6	6.8
	Örebro	9104	11.7	4580	29.8	6.7
	Västmanland	5940	11.8	2985	28.0	5.5
Educational level	Compulsory	7164	15.5	3696	31.5	8.8
	Secondary	13554	13.6	6749	32.7	6.7
	Post-secondary	9888	6.2	4834	30.7	3.5
Country of birth	Sweden	26864	11.0	13230	31.4	5.6
	Other Nordic countries	1703	16.7	890	30.3	7.4
	Outside Nordic countries	2342	15.4	1316	36.5	11.3
Employment	Employed	15290	11.1	7113	36.1	6.1
	Student	2165	8.7	986	39.2	5.7
	Unemployed	1015	22.9	551	36.7	10.1
	On sickness leave	918	17.4	487	34.5	6.2
	On disability pension	915	25.5	568	27.1	9.9
	Retired	10061	10.4	5478	24.6	5.7

habits was higher among smokers than among non-smokers. In particular, they received much more frequently advice on smoking habits (with an odds ratio of 20). Persons on disability pension and the unemployed were, however, less frequently asked about their smoking habits than employees. When daily smoking was taken into account, differences in the proportion who received advice attenuated substantially between the educational levels, which implies that the initial

differences could be partly explained by a higher smoking prevalence among persons with compulsory or secondary education. This does however not apply to country of birth. Those who were born outside the Nordic countries were advised to change their smoking habits about twice as often as people born in Sweden regardless of whether they were daily smokers or not (OR = 2.0; 95% CI: 1.6, 2.6). The difference between men and women also persisted after adjustment for smoking.

4. Discussion

The results of the study show that among those who visited primary care the proportion who received questions about lifestyle habits varied between 21 and 32% in 2012. Smoking was the lifestyle habit one most often received questions about. Daily smokers received questions and, in particular, advice on their smoking habits to a greater extent than non-smokers. But the proportion receiving questions and advice about smoking habits differed between population groups.

Men were more likely than women to be asked about their smoking habits and younger to a greater extent than older people, which is in line with the study based on the Swedish national patient survey from 2009 to 2010 (Swedish Association of Local Authorities and Regions, 2011). Men were also more prone to receive advice about changing their smoking habits than women, although the proportion of daily smokers is not higher among men. In the US, women are reported to be more likely to receive advice on smoking habits than men (Denny et al., 2003; Danesh et al., 2014) whereas in several other parts of the world receiving advice to quit has been more common among men (Chang et al., 2010; Centers for Disease Control and Prevention (CDC), 2013). In the latter countries, however, smoking prevalence is usually higher among men than among women. This was not the case in our study. Even though smoking prevalence is low and likely to decline both in women and men in Sweden as in most western countries (Lopez et al., 1994), the prevalence of smoking cannot be expected to decline automatically; rather, it will require major public health efforts (Molarius et al., 2001).

The age group 50–64 years received most often advice about changing their smoking habits in our study, and it was also the age group with the highest prevalence of smoking. That older persons are more likely to

Table 3

Odds ratios (with 95% confidence intervals in brackets) for having been asked questions and receiving advice about smoking habits during the last visit to a health care centre in 2012.

		Was asked about smoking (%)		Received advice about smoking (%)	
		OR1	OR2	OR1	OR2
Gender	Man	1 (ref.)	1 (ref.)	1 (ref.)	1 (ref.)
	Woman	0.7 (0.7, 0.8)	0.7 (0.7, 0.8)	0.7 (0.6, 0.8)	0.6 (0.5, 0.7)
Age group	16–34	2.0 (1.6, 2.4)	2.0 (1.6, 2.4)	1.4 (0.9, 2.1)	1.3 (0.8, 2.1)
	35–49	1.5 (1.3, 1.9)	1.5 (1.2, 1.8)	1.2 (0.8, 1.8)	1.0 (0.6, 1.5)
	50–64	1.5 (1.2, 1.8)	1.4 (1.2, 1.7)	1.9 (1.3, 2.8)	1.4 (1.0, 2.1)
	65–84	1 (ref.)	1 (ref.)	1 (ref.)	1 (ref.)
County	Uppsala	1 (ref.)	1 (ref.)	1 (ref.)	1 (ref.)
	Sörmland	1.0 (0.9, 1.1)	1.0 (0.9, 1.1)	1.1 (0.9, 1.3)	1.0 (0.8, 1.3)
	Örebro	0.8 (0.8, 0.9)	0.8 (0.8, 0.9)	1.1 (0.9, 1.3)	1.1 (0.9, 1.3)
	Västmanland	0.7 (0.7, 0.8)	0.7 (0.6, 0.8)	0.9 (0.7, 1.1)	0.8 (0.6, 1.0)
Educational level	Compulsory	1.2 (1.1, 1.4)	1.1 (1.0, 1.2)	2.8 (2.3, 3.4)	1.6 (1.3, 2.1)
	Secondary	1.2 (1.1, 1.3)	1.1 (1.0, 1.2)	2.0 (1.6, 2.4)	1.3 (1.1, 1.6)
	Post-secondary	1 (ref.)	1 (ref.)	1 (ref.)	1 (ref.)
Country of birth	Sweden	1 (ref.)	1 (ref.)	1 (ref.)	1 (ref.)
	Other Nordic countries	1.1 (0.9, 1.3)	1.1 (0.9, 1.2)	1.2 (0.9, 1.6)	1.1 (0.8, 1.4)
	Outside Nordic countries	1.1 (1.0, 1.3)	1.1 (1.0, 1.2)	2.2 (1.8, 2.7)	2.0 (1.6, 2.6)
Employment	Employed	1 (ref.)	1 (ref.)	1 (ref.)	1 (ref.)
	Student	0.9 (0.8, 1.1)	0.9 (0.8, 1.1)	0.7 (0.5, 1.1)	0.8 (0.5, 1.2)
	Unemployed	0.9 (0.8, 1.1)	0.8 (0.7, 1.0)	1.3 (0.9, 1.7)	0.8 (0.5, 1.1)
	On sickness leave	0.9 (0.7, 1.1)	0.9 (0.7, 1.1)	0.8 (0.6, 1.3)	0.7 (0.4, 1.1)
	On disability pension	0.7 (0.5, 0.8)	0.6 (0.5, 0.7)	1.2 (0.8, 1.6)	0.8 (0.6, 1.2)
	Retired	0.8 (0.7, 1.0)	0.8 (0.7, 1.0)	1.1 (0.8, 1.7)	1.1 (0.8, 1.7)
Daily smoker	No	–	1 (ref.)	–	1 (ref.)
	Yes	–	2.6 (2.3, 2.9)	–	20.9 (17.8, 24.4)

Statistically significant odds ratios ($p < 0.05$) are marked in bold. OR1: adjusted for all other variables except for smoking. OR2: adjusted for all other variables.

receive advice to quit smoking is in accord with previous research (Chang et al., 2010; Denny et al., 2003; Danesh et al., 2014; Centers for Disease Control and Prevention (CDC), 2013).

Regional differences in the proportion of receiving questions on smoking habits were found in our study. The results from the national patient survey confirm that patients in Uppsala and Sörmland County report to a greater extent that lifestyle habits have been discussed during visits to primary care than patients in Örebro and Västmanland County (The National Board of Health and Welfare, 2014). Regional differences have also been reported from the US (Danesh et al., 2014). However, our results suggest that the proportion who received advice to change their smoking habits did not differ between the counties. This is an important aspect of regional equality in health care.

In line with previous studies (Danielsson et al., 2012; Huisman et al., 2005), social differences in smoking habits were observed in our study. There was, however, no difference between levels of education in the proportion who were asked about smoking habits. Yet, it was much more common to be advised to change smoking habits among persons with compulsory or secondary education. These differences could largely be explained by a higher prevalence of daily smoking in these groups. That persons with low socioeconomic status are more likely to receive advice to quit smoking when visiting primary care has also been reported from the UK (Douglas and Szatkowski, 2013) whereas no differences between educational levels were found in the 2010 national survey in the US (Danesh et al., 2014). In Taiwan, socioeconomic differences in receiving advice to quit smoking were found in univariate analyses but these differences disappeared when other factors such as age were taken into account (Chang et al., 2010). The amount of cigarettes smoked, the number of visits or the reason for the last visit to primary care were not measured in our study and may have contributed to the unexplained differences between educational levels in our study.

In the present study, daily smoking was more common among persons on disability pension and the unemployed than among employed persons. Despite of this, they were more rarely asked about their smoking habits than employees. Few studies have investigated the association between employment status and receiving questions on smoking habits, but the UK study did find higher odds for smokers receiving cessation advice if they had uncertain employment and lived in deprived areas (Douglas and Szatkowski, 2013).

Furthermore, patients who were born outside the Nordic countries were advised to change their smoking habits about twice as often as patients born in Sweden in our study - regardless of whether they were daily smokers or not. Ethnic differences in receiving smoking cessation advice have also been reported from the US where a lower frequency of receiving advice has been found among African Americans and especially among Hispanics (Danesh et al., 2014; Houston et al., 2005). Language barriers and multicultural differences have been suggested as possible reasons for these differences but a need to investigate these differences in more detail in future studies has been acknowledged (Houston et al., 2005).

Previous studies have shown that persons with low socioeconomic status have more difficulties to quit smoking than persons with high socioeconomic status (Pisinger et al., 2011; Hiscock et al., 2015; Reid et al., 2010) which is pertinent for designing smoking cessation programs. Some studies have suggested that increasing the tobacco price via tax may be the most effective way to reduce socioeconomic inequalities in smoking (Main et al., 2008; Hill et al., 2014). Also other prevention efforts such as targeted cessation programs, providing longer-term support and using health advantages as motivating factors have been discussed (Pisinger et al., 2011; Sheffer et al., 2012; Hiscock et al., 2012b). Consequently, a need for both improved smoking cessation programs and wider societal efforts to tackle the socioeconomic differences in smoking habits has been noted (Hiscock et al., 2015).

The proportion of patients who report that health services discuss smoking habits has increased after the introduction of the national guidelines in Sweden (The National Board of Health and Welfare,

2014). Primary care has a crucial role in providing tobacco cessation advice due to its extensive contact with the general population - a fact that is confirmed in this study showing that about a half of the adult population visited a health care centre during the period of last three months. Moreover, health care providers asking all patients about their tobacco use and advising tobacco users to quit are evidence-based strategies that increase tobacco abstinence (Fiore, 2008).

In the present study, the proportion of patients who reported that they were asked about their smoking habits during their last visit to primary care was 32%. If this is a lot or a little is hard to assess. The report based on the Swedish national patient survey indicated that 68–86% of the visitors answered that “there was no need to discuss lifestyle habits” (Swedish Association of Local Authorities and Regions, 2011). The national guidelines for disease prevention methods also specify that there will always be a need to assess when and how the interviewer should ask about lifestyle habits (The National Board of Health and Welfare, 2011). In our study, the differences by employment status and country of birth, together with the result that women receive less advice than men, are however examples where preventive measures on smoking habits within the Swedish primary care seem to be partially misdirected. There seems thus to be a lack of a standardized system, as for example the one suggested by the WHO (World Health Organization, 2014), regarding when and how to ask and give advice to patients about their smoking habits. The national guidelines for disease prevention methods should therefore be developed to include a more standardized system in order to minimize the role of an individual care giver or organisation and to reduce existing differences between population groups in the likelihood of receiving questions and advice about smoking habits.

4.1. Limitations and strengths

The overall response rate in this study was 51% which is in line with other comparable population surveys in Sweden (Statistics Sweden, n.d.; The Public Health Agency of Sweden, n.d.). The response rate was lower among younger than among older subjects and in men compared with women. The respondents had also a somewhat higher educational level than the general population of the same age. Non-response was more common among those born outside the Nordic countries than among native Swedes. In addition, questions on receiving questions and advice on smoking habits were only answered by those who visited a primary care centre during the last three months i.e. about half of the respondents. The results should therefore be interpreted with caution.

The results in our study are based on self-reported data. We could not measure if receiving advice on changing smoking behaviour had any effect on smoking habits. Moreover, we did not have data on the number of cigarettes smoked, whether it was a doctor, a nurse or another care giver the patient visited, the reason for the visit or the number of visits to the same professional. These factors may have contributed to the differences found in this study.

In the national patient survey in Sweden, the question was whether lifestyle habits were “discussed” during health care visits (Swedish Association of Local Authorities and Regions, 2011). In our study, we were able to distinguish between if one was asked about lifestyle habits and if one received advice to change lifestyle habits, which was an advantage. We could also examine who received questions and advice about smoking habits in relation to whether the respondent smoked or not.

Although our study was limited to four counties, it is population based and represents almost the entire adult population aged 16–84 years in these counties, comprising about 1 million inhabitants in this age range. The prevalence of smoking was similar to the national average in Sweden (The Public Health Agency of Sweden, n.d.). Socio-demographic variables such as gender, age, county, educational level and country of birth were based on registry data, which increases the reliability of these variables.

4.2. Conclusion

It is important that preventive efforts in health care reach the groups of the population most in need of these measures in order to reduce socioeconomic differences in lifestyle habits and also, in the long run, to contribute to reduced socioeconomic inequalities in health. This study shows that, in Sweden, those who are asked and, in particular, receive advice about changing their smoking habits while visiting primary care are mainly those who need it most. But the results also suggest that measures to reduce smoking should be intensified for women and are perhaps too intense for persons born outside the Nordic countries. There seems to be a need to develop the national guidelines for disease prevention methods in order to reduce differences between population groups in receiving questions and advice about smoking habits.

Conflict of interest statement

Dr. Molarius has nothing to disclose. Dr. Hellstrand has nothing to disclose. Dr. Engström has nothing to disclose.

Transparency document

The Transparency document associated with this article can be found, in the online version.

Acknowledgements

The survey was funded by the County Councils of Västmanland, Sörmland, Uppsala and Örebro.

References

- Agardh, E., Moradi, T., Allebeck, P., 2008. Riskfaktorernas bidrag till sjukdomsbyrden i Sverige. Jämförelse mellan svenska och WHO-data (The contribution of risk factors to the burden of disease in Sweden. A comparison between Swedish and WHO data). *Lakartidningen* 105, 816–821.
- Anon., 2004. The Health Consequences of Smoking: A Report of the Surgeon General. Dept. of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Washington, DC (Available at http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2004/chapters.htm. Accessed December 1, 2016).
- Brown, T., Platt, S., Amos, A., 2014. Equity impact of European individual-level smoking cessation interventions to reduce smoking in adults: a systematic review. *Eur. J. Pub. Health* 24, 551–556.
- Centers for Disease Control and Prevention (CDC), 2013. Health-care provider screening for tobacco smoking and advice to quit – 17 countries, 2008–2010. *MMWR Morb. Mortal. Wkly Rep.* 62, 920–927.
- Chang, F.C., TW, H., Lo, S.Y., Yu, P.T., Chao, K.Y., Hsiao, M.L., 2010. Quit smoking advice from health professionals in Taiwan: the role of funding policy and smoker socioeconomic status. *Tob. Control* 19, 44–49.
- Danesh, D., Paskett, E.D., Ferketich, A.K., 2014. Disparities in receipt of advice to quit smoking from health care providers: 2010 National Health Interview Survey. *Prev. Chronic Dis.* 11, E131.
- Danielsson, M., Gilljam, H., Hemström, Ö., 2012. Health in Sweden: the National Public Health Report 2012. Tobacco habits and tobacco-related diseases. *Scand. J. Public Health* 40 (Suppl. 9), 197–210 (Chapter 10).
- Denny, C.H., Serdula, M.K., Holzman, D., Nelson, D.E., 2003. Physician advice about smoking and drinking: are U.S. adults being informed? *Am. J. Prev. Med.* 24, 71–74.
- Dobson, A., Filipiak, B., Kuulasmaa, K., et al., 1996. Relations of changing coronary artery disease rates and changes in risk factor levels: methodological issues and a practical example. *Am. J. Epidemiol.* 143, 1025–1043.
- Doll, R., Peto, R., Boreham, J., Sutherland, I., 2004. Mortality in relation to smoking: 50 years observations on male British doctors. *BMJ* 328, 1519.
- Douglas, L., Szatkowski, L., 2013. Socioeconomic variation in access to smoking cessation interventions in UK primary care: insight using the Mosaic classification in a large dataset of primary care records. *BMC Public Health* 13, 546.
- Ezzati, M., Hoorn, S.V., Rodgers, A., Lopez, A., Mathers, C., Murray, C., 2003. Estimates of global and regional potential health gains from reducing multiple major risk factors. *Lancet* 362, 271–280.
- Fiore, M.C., 2008. A clinical practice guideline for treating tobacco use and dependence: 2008 update. A U.S. Public Health Service report. *Am. J. Prev. Med.* 35, 158–176.
- Gilljam, H., 2012. Rökstopp ger snabba hälsovinsten (Quitting smoking brings quick health benefits). *Lakartidningen* 109, 554–557.
- Giskes, K., Kunst, A.E., Benach, J., et al., 2005. Trends in smoking behaviour between 1985 and 2000 in nine European countries by education. *J. Epidemiol. Community Health* 59, 395–401.
- Hill, S., Amos, A., Clifford, D., Platt, S., 2014. Impact of tobacco control interventions on socioeconomic inequalities in smoking: review of the evidence. *Tob. Control* 23, e89–e97.
- Hiscock, R., Bauld, L., Amos, A., Platts, S., 2012a. Smoking and socioeconomic status in England: the rise of never smoker and the disadvantaged smoker. *Aust. J. Public Health* 34, 390–396.
- Hiscock, R., Bauld, L., Amos, A., Fidler, J.A., Munafó, M., 2012b. Socioeconomic status and smoking: a review. *Ann. N. Y. Acad. Sci.* 1248, 107–123.
- Hiscock, R., Dobbie, F., Bauld, L., 2015. Smoking cessation and socioeconomic status: an update of existing evidence from a national evaluation of English stop smoking services. *Biomed. Res. Int.* 2015, 274056.
- Houston, H.K., Scarini, I.C., Person, S.D., Greene, P.G., 2005. Patient smoking cessation advice by health care providers: the role of ethnicity, socioeconomic status, and health. *Am. J. Public Health* 95, 1056–1061.
- Huisman, M., Kunst, A.E., Mackenbach, J.P., 2005. Inequalities in the prevalence of smoking in the European Union: comparing education and income. *Prev. Med.* 40, 756–764.
- Kenfield, S.A., Stampfer, M.J., Rosner, B.A., Colditz, G.A., 2008. Smoking and smoking cessation in relation to mortality in women. *JAMA* 299, 2037–2047.
- Lim, S.S., Vos, T., Flaxman, A.D., et al., 2012. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 380, 2224–2260.
- Lopez, A.D., Collishaw, N.E., Piha, T., 1994. A descriptive model of the cigarette epidemic in developed countries. *Tob. Control* 3, 242–247.
- Mackenbach, J.P., Stirbu, I., Roskam, A.J.R., et al., 2008. Inequalities in health in 22 European countries. *N. Engl. J. Med.* 358, 2468–2481.
- Main, C., Thomas, S., Ogilvie, D., et al., 2008. Population tobacco control interventions and their effects on social inequalities in smoking: placing an equity lens on existing systematic reviews. *BMC Public Health* 8, 178.
- Molarius, A., Parsons, R.W., Dobson, A.J., et al., 2001. Trends in cigarette smoking in 36 populations from the early 1980s to the mid-1990s: findings from the WHO MONICA Project. *Am. J. Public Health* 91, 206–212.
- Nagelhout, G.E., de Korte-de Boer, D., Kunst, A.E., et al., 2012. Trends in socioeconomic inequalities in smoking prevalence, consumption, initiation, and cessation between 2001 and 2008 in the Netherlands. Findings from a national population survey. *BMC Public Health* 12, 303.
- Norberg, M., Lundqvist, G., Nilsson, M., Giljam, H., Weinehall, L., 2011. Changing patterns of tobacco use in a middle-aged population: the role of snus, gender, age, and education. *Glob. Health Action* 4.
- Peto, R., Darby, S., Deo, H., Silcocks, P., Whitley, E., Doll, R., 2000. Smoking, smoking cessation, and lung cancer in the UK since 1950: combination of national statistics with two case-control studies. *BMJ* 321, 323–329.
- Pisinger, C., Aadahl, M., Toft, U., Jørgensen, T., 2011. Motives to quit smoking and reasons to relapse differ by socioeconomic status. *Prev. Med.* 52, 48–52.
- Proposition 2002/03:35, 2002. Mål för folkhälsa (Government proposition 2002/03:35. Public health objectives).
- Reid, J.L., Hammond, D., Bodreau, C., et al., 2010. Socioeconomic disparities in quit intentions, quit attempts, and smoking abstinence among smokers in four western countries: findings from the International Tobacco Control Four Country Survey. *Nicotine Tob. Res.* 12, S20–S31 (Suppl.).
- Sheffer, C.E., Stitzer, M., Landes, R., Brackman, S.L., Munn, T., Moore, P., 2012. Socioeconomic disparities in community-based treatment for tobacco dependence. *Am. J. Public Health* 102, e8–16.
- Statistics Sweden. Undersökningarna av levnadsvillkoren (ULF/SILC). [Living Conditions Surveys (ULF/SILC).] (Available at <http://www.scb.se>. Accessed December 1, 2016) n.d.
- Swedish Association of Local Authorities and Regions, 2011. Frågor om levnadsvanor i vården. Resultat från nationell patientenkät 2009 och 2010 (Questions on Lifestyle Habits in Health Care. Results from the National Patient Survey 2009 and 2010). (Stockholm).
- The National Board of Health and Welfare, 2011. Nationella riktlinjer för sjukdomsförebyggande metoder (National guidelines for disease prevention methods). (Stockholm).
- The National Board of Health and Welfare, 2014. Öppna jämförelser 2014 Folkhälsa (Open comparisons 2014 Public Health). (Stockholm).
- The Public Health Agency of Sweden. Hälsa på lika villkor? Nationella folkhälsoenkäten. [Health on equal terms? The national public health survey.] (Available at <http://www.folkhalsomyndigheten.se>. Accessed December 1, 2016) n.d.
- West, R., McNeill, A., Raw, M., 2000. Smoking cessation guidelines for health professionals: an update. *Health Education Authority. Thorax* 55, 987–999.
- World Health Organization, 2005. WHO Framework Convention on Tobacco Control. World Health Organization, Geneva, Switzerland (Available at <http://www.who.int/fctc/en>. Accessed December 1, 2016).
- World Health Organization, 2014. Toolkit for Delivering the 5A's and 5R's Brief Tobacco Interventions in Primary Care. World Health Organization, Geneva, Switzerland.
- Zwar, N., Richmond, R., Borland, R., et al., 2005. Smoking cessation guidelines for Australian general practice. *Aust. Fam. Physician* 34, 461–466.