

Final technical report

1. Project Title

Tackling socio-economic inequalities in smoking in the European Union

2. Reference Number

SPC2002411

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4. Initial Budget of the Project

Estimated total costs:	382 729,71	
Maximum grant	248 774,31	(65%)
Own contribution	133 955,40	(35%)

5. Executive Summary

The general objective of the project was to contribute to the successful implementation of strategies to reduce smoking behaviour in lower socio-economic groups in the European Union. The study consisted of four parts.

In Part A, we aimed to document trends in smoking behaviour by socio-economic group in different European countries. We created an international data set with information on smoking behaviour by socio-economic indicators in four periods (between 1985 and 2000) in eight European countries. Using these data, we made a series of international overviews of socio-economic inequalities in smoking in Europe and in some individual countries. In recent years, large socio-economic inequalities in smoking were observed in all countries, except among older women in southern countries. Socio-economic inequalities in smoking have emerged or widened among women in nearly all countries, while these inequalities were been stable among men during the last 15 years.

In Part B, we assessed the extent to which smoking interventions and policies in different European countries contained elements that may be effective especially in lower socio-economic groups. Based on a review of literature, we identified five types of tobacco control measures that may be effective especially among lower socio-economic groups: (a) rising tobacco taxation; (b) banning of promotion of tobacco products; (c) smoking restrictions in indoor workplaces; (d) availability of smoking cessation therapies and (e) telephone help lines. Next, we made a detailed overview of developments in these policies in a six countries between 1985 and 2000. We concluded that, even though most countries implemented at least some of these tobacco control measures, these measures were often implemented only partially, and in some cases favouring upper socio-economic groups more than lower groups.

The aim of Part C was to determine the extent to which socio-economic inequalities in smoking may have been influenced by tobacco control policies carried out in the past. We first performed an international study with the aim to assess whether the effects of rising tobacco prices on tobacco consumption may have been larger among lower socio-economic groups than among higher groups. We found some evidence to suggest a large effect of rising tobacco prices on consumption by lower educational groups in England and Wales. However, we did not observe such a differential effect in other European countries. In addition to this international study, national case studies in Sweden, the UK and Spain were carried out with the aim to study in more depth the effect of specific tobacco control measures. For example, a case study from Barcelona observed that smoking clinics achieved greater effects among men and women from higher socio-economic groups than among those from lower groups.

In Part D, we developed recommendations for comprehensive national and European tobacco control policies to reduce smoking behaviour in lower socio-economic groups. These recommendations are given in a brochure of 35 pages that

was written for professionals and policy makers in the field of tobacco control. This document is based on overview of literature and gives particular attention to the results of the empirical studies that were carried out in Parts A, B and C. The document provides an overview of patterns, trends and causes of socio-economic inequalities in smoking in the European Union. In addition, this document outlines ways to make tobacco control policies and related policies more oriented towards disadvantaged socio-economic groups.

6. Project Objectives

The general objective of the project is to contribute to the successful implementation of strategies to reduce smoking behaviour in lower socio-economic groups in Europe.

The first three specific objectives are:

1. to document (trends in) smoking behaviour by socio-economic group in different European countries;
2. to assess the extent to which smoking interventions and policies in different European countries contain elements which may be effective especially in lower socio-economic groups;
3. to determine the extent to which trends in smoking behaviour in lower socio-economic groups may actually have been affected by interventions and policies.

A fourth specific objective builds upon these three objectives, and corresponds with the ultimate goal of the project:

4. to develop recommendations for comprehensive national and European tobacco control policies to reduce smoking behaviour in lower socio-economic groups

7. General Background

General background

Smoking is more common in lower socio-economic groups in nearly all EU member states. An important challenge for comprehensive tobacco control policies, both at the national and international levels, is to reach lower socio-economic groups in particular. Some tobacco control measures have the potential to be more effective in lower socio-economic groups. However, it is uncertain (a) to what extent these measures have already been applied in different European countries and (b) whether their application may have had demonstrable effects on trends in smoking among lower socio-economic groups. This project aims to produce part of this missing information, and thus to contribute to the development of equity-oriented tobacco control policies.

Background to empirical studies

Part A. Many (> 30) studies have investigated time trends in social inequalities in smoking in individual countries. However, there are no international comparative overviews of these trends, except for a Monica based study on trends during the 1980s, and a systematic literature review of trends up to the late 1980s. Therefore, there is a need to prepare an overview of time trends in inequalities in smoking during the last 10 to 15 years of the 20th century, including an assessment of the pattern of inequalities by the year 2000.

Part B. There are several international overviews and comparisons of tobacco control policies. However, no overview has addressed the question to which extent policies in different countries have seized the possibilities to tackle smoking in lower groups in particular. A recent review showed that some demand-side tobacco control measures have the potential to be more effective in lower socio-economic groups. This raises the question to what extent these policies have been implemented over the last 10 to 15 years in different European countries.

Part C. Several studies have aimed to assess whether tobacco control policies have influenced trends in smoking in individual countries. However, relatively few studies have aimed to determine whether the effects of tobacco control measures differed according to socio-economic group. Several authors have suggested that health education campaigns have influenced upper socio-economic groups more than lower groups, thus contributing to a widening of inequalities in smoking. Supporting empirical evidence is however rare. There are more empirical studies with regards to the effect of tobacco price policies, but the evidence from these studies is yet mixed.

8. Part A: Time trends in inequalities in smoking

Objectives

The main objective of this part was to give an overview of time trends in inequalities in smoking during the 1980's and 1990's. A secondary objective was to produce an international overview of patterns of inequalities in smoking in recent years. This Part would in addition results in an international data bank on socio-economic inequalities in smoking, to be used for possible additional international overviews.

Methods

We obtained data from national health interview and similar surveys from eight European countries. Many of these surveys had large samples, which were nationally representative, and with detailed information on both smoking and socio-economic status. We obtained detailed data from Finland, Sweden, Norway,

Denmark, the United Kingdom, the Netherlands, Germany, Italy and Spain. For each country, data were obtained from 4 surveys held between the years 1985 and 2000.

We in addition used more data that could be used for in-depth studies. We acquired data from the European Community Household Panel, with data on smoking by educational level and income level in about 12 member states of the European Union. In addition, data from one country, Italy, were analysed in more detail in order to determine and to explain trends in smoking inequalities between 1980 and 2000.

Results

Among men, socio-economic inequalities in smoking were substantial in all countries. These inequalities were larger in relationship to educational level than in relationship to income level. These inequalities were observed in all member states of the European Union (as of the year 2000), with small variations in the precise magnitude. During the 1990s, these inequalities were stable in most countries, with increases in a few countries, but no decreases elsewhere.

Among women, socio-economic inequalities in smoking were observed in the north of Europe, while no or even inverse social gradients exist in the south. The inequalities were widening in most northern countries, and emerging in southern countries, due to more favourable trends in smoking among highly educated women. Among the youngest female generations, inequalities in smoking were observed in nearly all countries, except the very south.

Conclusion

Trends in inequalities in smoking in the European Union follow the predictions based of the four-stage smoking epidemic model. This epidemic follows a common path in most countries, with a north-south difference in the timing of its phases. The parallel trends stress that, despite major regional and national variations, inequalities in smoking constitute a problem whose roots are common to all European countries.

9. Part B: Inventory of smoking policies

Objectives

The principle objective of this part was to assess the extent to which smoking interventions and policies in different European countries contain elements that may be effective especially in lower socio-economic groups. The specific objectives were (a) to identify tobacco control measures that may be potentially effective especially among lower socio-economic groups and (b) to prepare of an overview of trends in the implementation of these measures in about six European countries.

Methods

The identification of potentially relevant tobacco control measures was based on a review of Platt et al that was prepared at about 2000. This review was updated by including more recent publications, including new Cochrane reviews on specific tobacco control measures. The overview did not only rely on evidence from experimental studies, but also looked at (both quantitative and qualitative) evidence with tobacco control in real-world situations.

The international overview started with a collection of data from international studies and data banks, such as those on the price of tobacco products. However, most of these sources of information lacked information of time trends, which was the central focus of our study. Therefore, additional information was obtained from six individual countries. Detailed questionnaires were prepared on the implementation of five types of tobacco control measures in 1985, 1990, 1995 and 2000 respectively. National representatives completed and returned the questionnaires.

Results

Five tobacco control measures were found to have a considerable potential to reduce inequalities in smoking between socio-economic groups by having the greatest effects among lower groups. These include banning of advertisement, rising tobacco prices, work place interventions, free supply of NRT and similar cessation aids, and telephone help lines. Some other specific measures (e.g. health publicity campaigns) should also be considered as part of comprehensive tobacco control strategies, but are generally be less effective in reducing inequalities in smoking.

Potentially relevant tobacco control measures were not fully implemented in European countries during the past decades. Banning of tobacco advertisement was not complete in most countries, and indirect forms of promotion persisted in most countries. Tobacco taxation rates greatly vary between countries, with much room for large price increases in many European countries by the year 2000. Bans on smoking in working place are voluntary in many countries, with greater rates of implementation in professional and white collar settings than in the manufacturing industry and other blue collar places. By the year 2002, NRT were made available free of cost on a national level only in the UK and France. Finally, many countries lack national quit lines that are proactive and free of charge.

Discussion

There is much potential to develop tobacco control strategies that are maximally effective among lower socio-economic groups. However, no European country has yet fully seized this potential. Even though most countries implemented at least some potentially relevant tobacco control measures, these measures were often implemented partially and not fully to the benefit of lower socio-economic groups.

10. Part C: Assessment of the effect of smoking policies

Objectives

The general objective of this part was to determine the extent to which trends in smoking behaviour in lower socio-economic groups may actually have been affected by tobacco control measures in the past. Differential effects of past tobacco control policies were studied in additional analyses of our international data bank on smoking trends. In addition, national case studies reviewed the experience of tobacco control policies in specific settings.

Methods

In the international study, data on smoking trends between about 1985 and 2000 were obtained in part A of this study, while data on the implementation of tobacco control policies in the same period were obtained in part B. Given the current scientific controversy on this issue, we decided to concentrate this international analysis on the differential effects of increases in tobacco price.

National case studies were selected in such a way as to capture the experience from different countries (both in north and south of Europe) with different tobacco control measures (with emphasis on smoking cessation aids). The studies selected came from Sweden, United Kingdom and Spain. We also included a comprehensive study of trends in New Zealand.

Results

The tobacco control policies that have been carried out in European countries thus far seems to have had more effect on trends in smoking among upper socio-economic groups than on trends among lower groups. For example, even though maternity-related and other smoking policies have achieved a substantial reduction in tobacco consumption among pregnant women in Sweden during the last 20 years, socio-economic inequalities in smoking prevalence and cessation persisted, and even widened in relative terms.

The supply of NRT and other smoking cessation services is likely to have increased rates of successful cessation among upper socio-economic groups more than among lower social groups. For example, the likelihood of successful quit attempts among clients of a smoking cessation clinic in Barcelona was considerably larger among smokers with a higher educational level or higher occupational class. The greater success of upper socio-economic groups was achieved despite (or perhaps due to) the fact that the same services were provided to all smokers.

In the past years, high tobacco taxation rates were probably the most effective single measure to reduce levels of tobacco consumption among lower socio-economic groups. Overall, however, the evidence on a differential impact on different socio-economic groups is mixed. Our international study found that in England and Wales,

prices elasticities were higher among lower educational groups. However, no such differential effect was observed in most other countries. Thus, even though tobacco taxation may have strongly influenced tobacco consumption among lower socio-economic groups, higher groups in many countries may have responded in similar ways, and inequalities in smoking may have remained unchanged, albeit at lower overall levels of consumption.

Discussion

Tobacco control policies seem to have had generally larger effects on trends in smoking among upper socio-economic groups than among lower groups. This is not an exclusively European phenomenon. A paper from New Zealand discussed in detail how (the absence of) tobacco control policies during the 1980s and 1990s contributed to a widening of inequalities in smoking in relation to income and ethnicity.

11. Part D: Recommendations

Objectives

The last part of the project aimed to develop recommendations for comprehensive national and European tobacco control policies to reduce smoking behaviour in lower socio-economic groups. These recommendations were presented in the form of a small brochure aimed at policy makers who are involved in tobacco control at local, national or international levels.

Methods

The general outline of the brochure was developed during a two-day workshop held at the end of the project. When writing the brochure, we drew upon a wide range of studies published in the international literature. Special attention was given to the evidence that was accumulated in parts A, B and C of this proposal, and that was evaluated during the two-day workshop at the end of the project.

Results

In each European country, there is still a considerable scope for developing comprehensive strategies aimed at tackling socio-economic inequalities in smoking. There are several ways to increase the effectiveness of specific tobacco control measures among lower socio-economic groups, including (a) strict enforcement of laws and agreements, (b) removal of financial and other barriers, (c) geographic or social targeting of services and (d) tailoring of communication approaches. Comprehensive strategies should give weight to tobacco control measures that have most potential to reach lower socio-economic groups, such as price policies. Equity

concerns should also guide the policy process, including target setting, advocacy and mobilisation, and the recruitment of workers for tobacco control.

There is a large potential to increase effects of traditional tobacco control policies by linking up with social and economic policies that can improve the living conditions and personal resources of disadvantaged people. At local levels, tobacco control can be integrated into community-based actions such as local support groups and actions for a safe and healthy living environment. At national and international levels, socio-economic policies such as income support for the poor can be integrated with tobacco control measures such as rising tobacco taxes.

Conclusion

As smoking is increasingly more concentrated among lower socio-economic groups, reaching these groups is essential to achieve main reductions in tobacco consumption across Europe. To meet this challenge, comprehensive tobacco control policies should fully implement a series of measures, and tailor these measures according to the needs of lower socio-economic groups. These measures should be backed up by broader policies, at local, national and international levels, aimed at creating supportive environments for lower socio-economic groups.

12. Evaluation of the Project

Part A could be completed without major problems. We were able to prepare detailed international overviews of recent trends and current patterns of socioeconomic inequalities in smoking. In addition, we found opportunities to perform in-depth analyses of one country of particular interest (Italy), and we created a data bank that will enable more in-depth analyses in the future. The overviews produced on the basis of these data will serve as a reference point to policy documents for many years.

Part B could also meet its objectives. The first step, identification of tobacco control measures that are potentially effective among lower groups, was facilitated by the publication of a recent overview by Platt et al. We could build upon this overview, and we extended it by taking into account the evidence of more recent scientific publications, and by consultation with experts from different countries.

The second step of part B, overview of recent policies in Europe, caused more work than initially expected, because available international overviews did not contain as much time depth as we needed for the purpose of this project. Therefore, we decided to measure changes in relevant tobacco control policies by means of questionnaires to be filled in by national representatives. As this work would overlap in part with the ENSP “*Development of a measurement tool...*”, we decided to restrict our overview to a limited number of countries. Our sample of countries was

sufficient to support the general conclusion of Part B that there is considerable scope for further policies aimed to tackle inequalities in smoking.

In Part C, it was found to be difficult to determine the effects of tobacco control policies on smoking outcomes in lower socio-economic groups. In the international analysis, we encountered the common scientific problem of attributing causality to an observed statistical relationship (here: between price and tobacco consumption). As a result, our analysis of the association between tobacco price and tobacco consumption could only give some indications on (differential) effects of price policies. This causality problem was also met in previous studies on price elasticities according to income or education.

Some of the national case studies of part C offered more decisive evidence on differential impact of tobacco control policies. This especially applied to the effects of smoking cessation interventions, which could be evaluated in more detail for both England and for Barcelona. Given the important insights gained from these analyses, it is regrettable that, due to the strict time schedule of this project, we had no opportunity to issue more national case studies. Within Europe, there is a wealth of data, both from observational and intervention studies, that are not yet analysed from an equity perspective.

In Part D of the project, we did not encounter major problems with writing a document with policy implications. These implications could be presented in a brochure that may be of interest to policy makers and professionals working on tobacco control throughout Europe. However, while preparing this document, we faced the general problem that the evidence base for policy making is yet weak. Most recommendations could not be based exclusively on 'hard' scientific evidence derived from studies that meet high scientific standards. Where the evidence base was yet weak, recommendations were formulated at a general level only, thereby accepting that these recommendations deal more with general strategic visions than with the concrete actions that need to be taken on the ground.

A general limitation of this project is that it refers to the European Union before its extension into Central and Eastern Europe. Future project will have to make special efforts to include the countries that will become EU member states in 2004.

Despite the scientific and practical problems that are mentioned above, this project has met each of its four specific objectives. The success of this project is also evident in its rich output (see section 14), which includes about 10 papers for international scientific journals, and the translation of their results into a brochure for policy makers and professionals.

13. Recommendations for future research

There is a strong need for a concerted program of research and development that aims to guide policies to tackle inequalities in smoking. Inequalities in smoking need to be taken into account in the following three fields of research and development

1. Monitoring of socio-economic inequalities in tobacco consumption. Until recently, surveillance of trends in tobacco consumption was usually carried out for national populations at large, with often a distinction by age and sex. Future surveillance should however be extended and distinguish, on a systematic basis, subgroups of the population defined in socio-economic terms such as education, income or occupational class. This surveillance system should also be attentive to high or rising levels of tobacco consumption within specific disadvantaged groups such lone mothers or ethnic minority groups. When operative, this system may also be used to monitor the effects of new tobacco control measures, such price increases, on smoking within different socio-economic groups.

2. Identification of determinants of tobacco consumption. In the search for determinants of smoking initiation and cessation, too little attention has yet been paid to the situation of lower socio-economic groups. It has been argued that the determinants that are identified in mainstream literature may be more relevant to upper and middle socio-economic classes than to men and women at the bottom of the social hierarchy. A shift in focus to lower socio-economic groups may lead to a greater attention to factors that are specifically relevant to lower socio-economic groups, such as environmental and structural determinants of smoking continuation among adolescent and adult smokers.

3. The evaluation of tobacco control measures. While the evidence is growing for the effectiveness of tobacco control measures targeted at whole population, more efforts should be made to study the effect of interventions among lower socio-economic groups in particular. Evaluations of specific tobacco control measure need to ascertain whether they have had similar or even larger effects among these lower groups, and investigate which features of these control measures have contributed to the differential effects that are observed. Good examples of such research are now becoming available, such as the evaluation of smoking cessation services delivered to deprived communities in England. Similar evaluations need to be carried out in different policy fields including work place regulations, community-based or school-based programs, and the tobacco taxation.

Finally, we need to stress the importance of international co-operation. Within Europe, there is a wealth of data, both from observational and intervention studies, that are not yet analysed from an equity perspective. Even though there are important differences between European countries, European countries have sufficient in common to learn from each other's experience. International organisations such as the ENSP may play a key role in the exchange of experiences and in the formation of a European evidence base on tackling inequalities in smoking.

14. Dissemination of the Results

The core result of this project is a brochure that summarises the main findings and recommendations for policy makers and health care professionals throughout Europe. This brochure, called "*Socio-economic inequalities in smoking in the European Union: applying an equity lens to tobacco control policies*", is yet in a draft form. The final version will be given wide distribution across Europe, e.g. through the website of the ENSP. A plan for dissemination of this brochure will be set up, in co-operation with the ENSP and other organisations, before completing the final version of this report.

The scientifically most interesting results of this project will be disseminated by means of publications in peer-reviewed international journal. At this moment, the following papers are submitted to an international journal, or will be submitted within half a year. Each paper is supported with funds from the present project.

1. K. Giskes et al. Trends in smoking inequalities in eight European countries, 1985-2000.
2. K. Giskes et al. Effects of price on trends in smoking among different educational groups in eight European countries.
3. M. Huisman et al. Educational differences in smoking among men and women in 12 member states of the European Union.
4. M. Huisman et al. Education compared to income as predictors of smoking in 12 member states of the European Union.
5. B. Federico et al. Trends between 1980 and 2000 in educational differences in smoking in the macro regions of Italy.
6. B. Federico et al. Inequalities in initiation and cessation of smoking in three different generations in Italy.
7. A. Kunst et al. Review of policies that are potentially effective to tackle inequalities in health, and their implementation in five European countries.
8. S. Platt et al. Inequalities in smoking in Scotland: the role of individual-level versus area-level determinants.
9. K. Moussa et al. Trends in inequalities in smoking among pregnant women in Sweden.
10. E. Fernandez et al. Inequalities in smoking cessation among patients of a smoking clinic in Barcelona.

Some of these papers have been presented orally at international conferences, including the annual meeting of the European Union of Public Health Associations (Rome, 2003), and the 12th World Conference on Tobacco or Health (Helsinki, 2003). More presentations at both national and international occasions are envisaged.

15. List of Project Partners

The co-ordinating centre

- Johan Mackenbach (project leader)
- Anton Kunst (daily co-ordinator)
- Katrina Giskes (researcher)
- Martijn Huisman (researcher)

Partners conducting national case studies funded by this project

- Bruno Federico (Italy)
- Giuseppe Costa (Italy)
- Ken Judge (Scotland)
- Stephen Platt (Scotland)
- Gillian Raab (Scotland)
- Steve Fernandez (Spain)
- Carme Borrel (Spain)
- Joan Benach (Spain)
- Per-Olof Östergren (Sweden)
- Konti Moussa (Sweden)

Partners participating in the first workshop (Rotterdam, January 2003) and/or the second workshop (Edinburgh 2003)

- Niels Rasmussen (Denmark)
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