

Socioeconomic inequalities in the use of health care services in Europe

The role of public coverage and population-based
cancer screening programmes

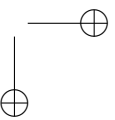
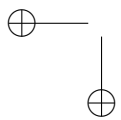
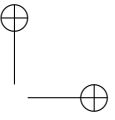
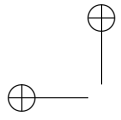
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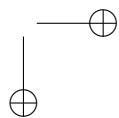
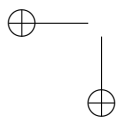
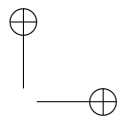
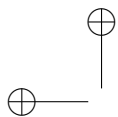
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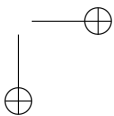
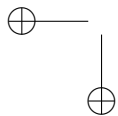
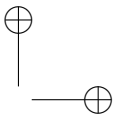
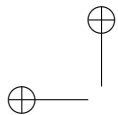
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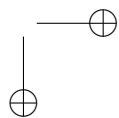
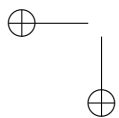
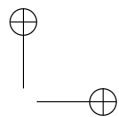
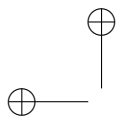
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A tots, gràcies!!

Abstract

The aim of this thesis was to describe inequalities in the use of different health care services according to socioeconomic position (SEP) in Catalonia, Spain and Europe. In addition, we intended to assess whether the public coverage of the services, in particular dental health care, has an influence on the magnitude of inequalities in the use of such services. Finally, we aimed to determine the influence of population-based female cancer screening programmes on the prevalence of screening and on the extent of inequality.

To accomplish these objectives four studies were carried out. The sources of information of the four studies were, respectively: several editions of the Catalan Health general practitioner (GP) services are equitable or manual classes use them to a greater extent. However, there are marked SEP inequalities in the use of outpatient specialist services, especially in dental care. Socioeconomic inequalities in use of dental care services exist throughout Europe, but they are larger in countries in which dental care is not covered at all by the public health care system than in countries in which dental care is partially covered. In Europe, socioeconomic inequalities in breast and cervical cancer screening are not found in countries with population-based screening programmes but they are found in those countries with only regional or pilot programmes and in those countries with opportunistic screening.

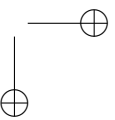
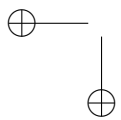
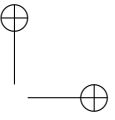
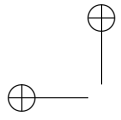


Resum

L'objectiu d'aquesta tesi era descriure les desigualtats en l'ús de diferents serveis sanitaris segons la posició socioeconòmica a Catalunya, Espanya i a Europa. A més a més, es volia avaluar si la cobertura pública dels serveis, en particular la dels serveis dentals, influencia la magnitud de les desigualtats socioeconòmiques en l'ús d'aquests serveis. Finalment, es va voler determinar la influència dels programes poblacionals de cribratge dels càncers de mama i cèrvix en la prevalença de cribratge i en la magnitud de les desigualtats.

Per tal d'assolir aquests objectius es van dur a terme 4 estudis. Les fonts d'informació d'aquests estudis van ser, respectivament: diferents edicions de l'Enquesta de Salut de Catalunya (ESCA), diferents edicions de l'Enquesta Nacional de Salut d'Espanya (ENS), l'Enquesta de Salut, Entorn i Jubilació a Europa (SHARE) 2006 i dades dels països europeus que van participar a l'Enquesta Mundial de la Salut de l'OMS l'any 2002. Els dos primers estudis eren estudis de tendències mentre que els dos últims van ser transversals. En tots els estudis les desigualtats socioeconòmiques es van mesurar mitjançant índexos relatius (RII) i absoluts (SII) de desigualtat.

Els resultats d'aquests estudis mostren que a Catalunya i a Espanya els serveis d'atenció primària són equitatius o fins i tot les persones de classes manuals en presenten una major proporció d'ús. Tanmateix, hi ha marcades desigualtats en visites a l'especialista, especialment en les visites al dentista. Les desigualtats socioeconòmiques en la utilització dels serveis dentals existeixen a tota Europa, però són més grans en aquells països on l'atenció dental no està coberta pel sistema públic de salut que en aquells països on aquesta està parcialment coberta. A Europa, no es troben desigualtats socioeconòmiques en el cribratge dels càncers de mama i cèrvix en aquells països amb programes poblacionals de cribratge, però sí que es troben en aquells països amb programes pilot o regionals o amb només cribratge oportunista.



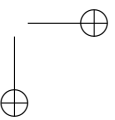
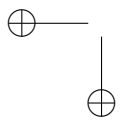
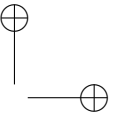
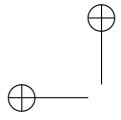
Preface

This thesis was mainly performed at the Agència de Salut Pública de Barcelona under the supervision of Dr. Carme Borrell. It is presented as a collection of publications in accordance with the Phd in Biomedicine program regulations at the Pompeu Fabra University. Specifically it consists of 4 papers, three of which are published in *Medicina Clínica*, *European Journal of Health Economics* and *International Journal of Epidemiology*. A fourth paper is currently under review in *Community Dentistry and Oral Epidemiology*.

The thesis is structured as follows: an introduction of the research topic and development of the conceptual framework of the thesis, a justification of the study, its objectives and hypotheses, the results of the thesis (4 papers displayed in order to follow a line of reasoning), a chapter in which the results as well as their limitations and implications are discussed and a summary of the conclusions.

Two of the papers (papers 2 and 4) fall within the Project 'Inequalities in the use of preventive services and preventive practises at the turn of the century in Spain' supported by the Plan Nacional de Investigación Científica, Desarrollo e Innovación Tecnológica (I+D+I) and the Instituto de Salud Carlos III - Subdirección General de Evaluación y Fomento de la Investigación (PI07/90302), whose lead researcher was Carme Borrell. Paper 1 was a request to Carme Borrell from the journal *Medicina Clínica*.

In order to obtain the European Doctoral Mention, I spent five months developing part of this thesis at the Department of Epidemiology and Public Health at University College of London (UCL). I received the grant which made it possible from the Agency for Management of University and Research Grants (AGAUR).

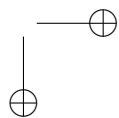
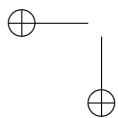
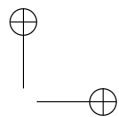
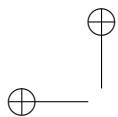


Contents

Acknowledgements / Agraïments	v
Abstract	vii
Resum	ix
Preface	xi
List of figures	xvii
1 INTRODUCTION	1
1.1 Socioeconomic inequalities in health	1
1.2 Socioeconomic inequalities in use of health services	2
1.3 Conceptual framework of the thesis	5
1.3.1 Andersen’s model of use of health services	6
1.3.2 Socioeconomic position and individual determinants of use of health services	9
1.3.3 Structural determinants of SEP inequalities in use of health services	10
1.3.4 Conceptual framework of the determinants of SEP inequalities in use of health services	13
2 JUSTIFICATION	17
3 HYPOTHESES AND OBJECTIVES	19
3.1 Hypotheses	19

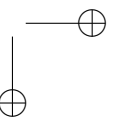
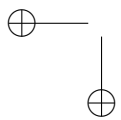
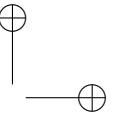
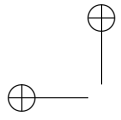
3.2	Objectives	20
3.2.1	General objectives	20
3.2.2	Specific objectives	20
4	PAPERS	23
4.1	Borrell, C., Palència, L., Rodríguez-Sanz, M., Malmusi, D., Bartoll, X., and Puigpinós, R. (2011). [Trends in social inequalities in health in Catalonia, Spain]. <i>Med. Clin. (Barc.)</i> , 137 Suppl 2:60-5. Spanish.	25
4.2	Palència, L., Espelt, A., Rodríguez-Sanz, M., Rocha, K. B., Pasarín, M.I., and Borrell, C. (2011). Trends in social class inequalities in the use of health care services within the Spanish National Health System, 1993-2006. <i>Eur. J. Health Econ.</i> [Epub ahead of print.]	33
4.3	Palència, L., Espelt, A., Cornejo-Valle, M., and Borrell, C. Socio-economic inequalities in use of dental care services in Europe: what is the role of public coverage? (Under review in <i>Community Dent. Oral Epidemiol.</i>)	45
4.4	Palència, L., Espelt, A., Rodríguez-Sanz, M., Puigpinós, R., Pons-Vigués, M., Pasarín, M. I., Spadea, T., Kunst, A. E., and Borrell, C. (2010). Socio-economic inequalities in breast and cervical cancer screening practices in Europe: influence of the type of screening program. <i>Int. J. Epidemiol.</i> , 39(3):757-65.	73
5	DISCUSSION	85
5.1	Socioeconomic inequalities in health/need of health services	86
5.2	Socioeconomic inequalities in use of health care services	88
5.2.1	Primary care services	88
5.2.2	Outpatient specialist services	89
5.2.3	Hospitalisations	91
5.2.4	Emergency services	92

5.3	SEP inequalities in use of dental services and influence of the degree of public coverage of dental services . . .	93
5.4	SEP inequalities in female cancer screening and influence of the type of screening programme	95
5.5	Limitations	97
5.6	Implications and recommendations	99
6	CONCLUSIONS	103
	Bibliography	120



List of Figures

1.1	Education level inequalities (Relative Index of Inequality adjusted by age, perceived health status, presence of long-term illnesses and limited activities) in use of health care services in men aged 50 or more in Europe	4
1.2	Education level inequalities (Relative Index of Inequality adjusted by age, perceived health status, presence of a long-term illnesses and limited activities) in use of health care services in women aged 50 or more in Europe	5
1.3	Andersen’s final model of use of health services: A behavioural model of health services use including contextual and individual characteristics	7
1.4	Andersen’s first model of use of health services: The Initial Behavioural Model	8
1.5	Relations between politics, labour market and welfare state policies, economic inequality, and health indicators	11
1.6	Conceptual framework of the determinants of social inequalities in health. Commission to Reduce Social Inequalities in Health in Spain	12
1.7	Conceptual framework for the analysis of socio-economic inequalities in use of health care services . . .	14
5.1	Social class inequalities (Relative Index of Inequality adjusted by age and perceived health) with and without adjustment by tenure of additional private health insurance in use of health care services in men and women in Catalonia	90
5.2	Social class inequalities (Relative Index of Inequality adjusted by age, perceived health status and presence of chronic conditions) with and without adjustment by tenure of additional private health insurance in use of health care services in men and women in Spain . . .	91



Chapter 1

INTRODUCTION

This section is organised as follows. First, a brief introduction of socioeconomic inequalities in health and their determinants is presented and some concepts are reviewed. Next, socioeconomic inequalities in use of health care services are introduced and a review of socioeconomic inequalities in European health care systems according to the type of service is performed. Finally, the conceptual model of the thesis and the different models on which it is based are developed.

1.1 Socioeconomic inequalities in health

The term social inequalities in health refers to unfair and avoidable or remediable differences in health among population groups defined socially, economically, demographically or geographically [Solar and Irwin, 2010]. They are differences in health which are systematic, socially produced and unfair [Whitehead and Dahlgren, 2006]. These inequalities are the consequence of differential circumstances, opportunities and resources between social groups that result in a worse health among those socially deprived [Comisión para Reducir las Desigualdades Sociales en Salud en España, 2012].

Socioeconomic position (SEP) is one of the axes of social inequality and refers to the social and economic factors that influence the

position individuals or groups hold within a society [Galobardes et al., 2006]. It is an aggregate concept that includes both resource-based and prestige-based measures [Krieger et al., 1997]. There is no single best indicator suitable for all the situations, although the most used individual indicators to measure SEP have been education level, income and occupation.

Socioeconomic inequalities in health are a common phenomenon; in all European countries most disadvantaged groups have worse health and higher mortality [Whitehead and Dahlgren, 2006]. These inequalities arise because of the circumstances in which people grow, live, work and age; while these conditions are, in turn, shaped by political, social, and economic forces [CSDH, 2008]. In this regard, health services are not the main determinant of health or health inequalities, however they have an important role coping with and ameliorating the damage to health caused by health inequalities [Whitehead et al., 1997]. In addition, they can contribute to equity with the promotion of intersectoral action to improve health status, with the social participation and empowerment of people, as well as mediating the differential consequences of illness in people’s lives [Solar and Irwin, 2010].

1.2 Socioeconomic inequalities in use of health services

An equitable service has been defined as one that matches access to need regardless of ability to pay [Hanratty et al., 2007] or, more pragmatically, one in which there is equal use for equal need [Dahlgren and Whitehead, 2007]. The concept of access and the difference between access to and use of health services have been a matter of debate [Aday and Andersen, 1974, Frenk, 1985, Penchansky and Thomas, 1981], with access generally defining the fit between patients and the health care system, and use a combination of access and personal choice. Despite this debate, researchers have usually concentrated on

differences in utilisation as an indicator of inequitable access given the difficulty of differentiating between them in actual practice [Dixon et al., 2003]. In addition, we know that decisions (such as using health services) are hardly ever a matter of choice but a result of contextual and social circumstances. So, as other authors, we will consider inequalities in utilisation as proxies for inequalities in access to health services, although we will try to be consistent and use the appropriate wording throughout the text.

Most European countries have established nearly universal systems of health care coverage for their populations, including comprehensive packages of medical services [van Doorslaer et al., 2006]. However, socioeconomic inequalities in use of health care persist in certain services once the different needs of the groups have been taken into account. According to a review performed by Hanratty et al. in systems with universal coverage [Hanratty et al., 2007], in most countries there is little evidence of variations in use of primary care services by the different socioeconomic groups after adjusting for differential needs, or, if any, they are in the sense that socioeconomically disadvantaged people use them to a greater extent. In contrast, they found marked socioeconomic inequalities in use of specialised care [Hanratty et al., 2007]. This was also shown in a study of 21 OECD countries, where in all countries people with higher incomes were significantly more likely to see a specialist and, in most countries, also more frequently [van Doorslaer et al., 2006].

These patterns can also be seen in figures 1.1 and 1.2, where the relative inequalities in the use of three different health care services in people aged 50 or over from 13 European countries are shown. In men (figure 1.1), we observe significant differences in use of general practitioner (GP) services among different socioeconomic groups in four countries, but in two of these countries socioeconomically advantaged men are more likely to use the services and in the other two socioeconomically disadvantaged men are more likely to use them. The same happens among women (figure 1.2); in one country the higher use is in favour of SEP advantaged women and in another

the higher use is in favour of SEP disadvantaged ones. In contrast, socioeconomic inequalities (in the sense that SEP advantaged people are more likely to use the services) in specialist visits are present in 9 out of 13 countries among men and in 8 out of 13 countries among women. Socioeconomic inequalities in hospitalisations exist in two countries among men and in one country among women, and in this case inequalities are quite high.

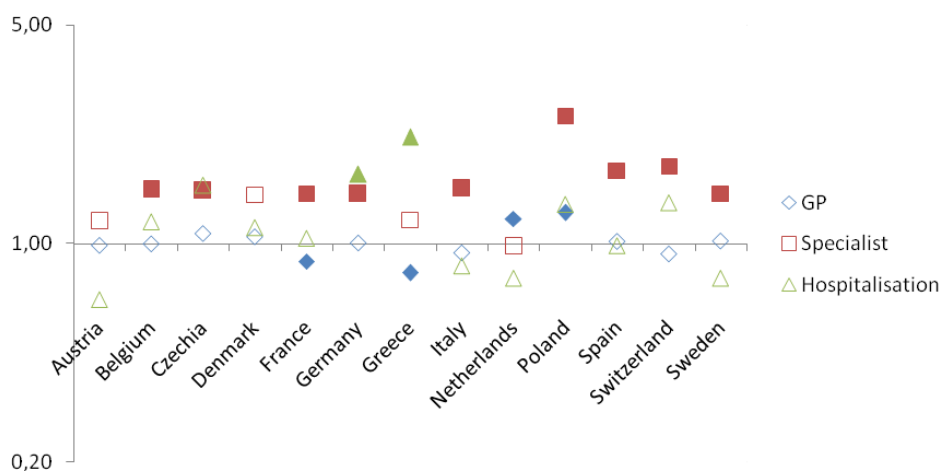


Figure 1.1: Education level inequalities (Relative Index of Inequality adjusted by age, perceived health status, presence of long-term illnesses and limited activities) in use of health care services in men aged 50 or more in Europe (filled shapes indicate statistically significantly different from 1). Source: personal compilation based on SHARE 2006 data

It seems that SEP inequalities are higher in the use of preventive services [Breen et al., 1996] because in the absence of a factor such as need that prompts the use of health services, other individual or contextual factors may have more weight. In Europe, socioeconomic inequalities in breast and cervical cancer screening have been found according to several socioeconomic indicators [Moser et al., 1988,

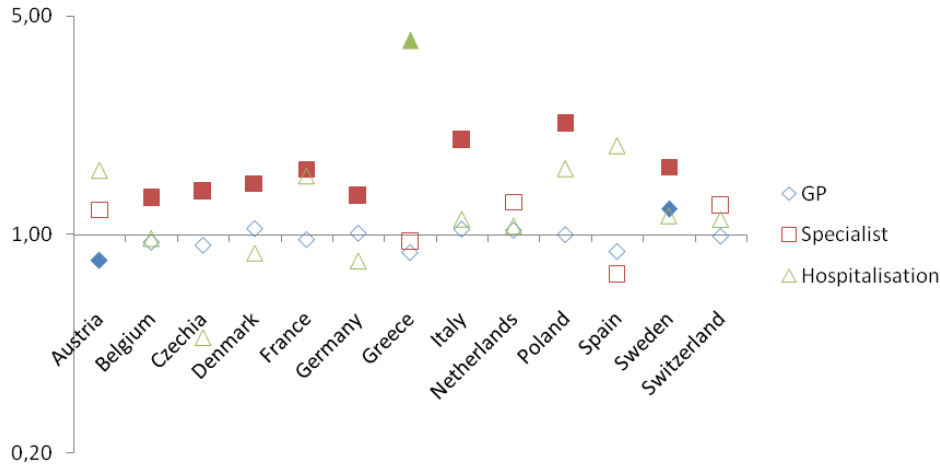


Figure 1.2: Education level inequalities (Relative Index of Inequality adjusted by age, perceived health status, presence of a long-term illnesses and limited activities) in use of health care services in women aged 50 or more in Europe (filled shapes indicate statistically significantly different from 1). Source: personal compilation based on SHARE 2006 data

Lorant et al., 2002, Zackrisson et al., 2004, Zackrisson et al., 2007, Baker and Middleton, 2003]. However, some studies have also found conflicting results, either not finding those inequalities [Eaker et al., 2001] or finding that the association between SEP and use of services follows a non-linear relationship such as a U shape (those with middle levels of education had the highest attendance rates) [Luengo-Matos et al., 2006, von Euler-Chelpin et al., 2008].

1.3 Conceptual framework of the thesis

To explain our conceptual framework on the determinants of socio-economic inequalities in use of health care services we will start by introducing Andersen’s model of use of health services [Andersen,

1995, Andersen, 2008]. Next, we will see how SEP is related to most of the determinants of use and thus creates socioeconomic inequalities in use of health care. Finally, we will explain the political and socio-economic context that favours the presence of these inequalities, based on the models of Navarro [Navarro et al., 2006] and that of the WHO’s Commission on Social Determinants of Health (CSDH) [Solar and Irwin, 2010] which has been recently revised for the case of Spain [Comisión para Reducir las Desigualdades Sociales en Salud en España, 2012]. At the end of the section we will present the conceptual model developed for this thesis.

1.3.1 Andersen’s model of use of health services

One of the most extensively employed models in use of health services research is the one by Andersen [Andersen, 1995, Andersen, 2008]. Its popularity comes mainly from its simplicity and cross-sectional nature and the fact that the variables that appear in it are commonly asked in surveys. It has been revised several times, the most recent version being shown in figure 1.3.

Despite this being the most recent and revised model, we will only make use of the part of the framework concerning individual characteristics since we will use models more directed towards inequalities for the contextual part. The individual part of the model in fact coincides with the first version of the model he developed, which is shown in figure 1.4.

According to Andersen’s model, the individual determinants of use of health services can be classified into predisposing characteristics, enabling resources and need of health services.

Predisposing factors would be those characteristics such as age or sex that represent biological imperatives suggesting the likelihood that people will need health services. But also the attitudes, values and knowledge that people have towards health and healthcare and that influence their perceptions about their own needs and their subsequent use of the services. In effect, health problems increase with

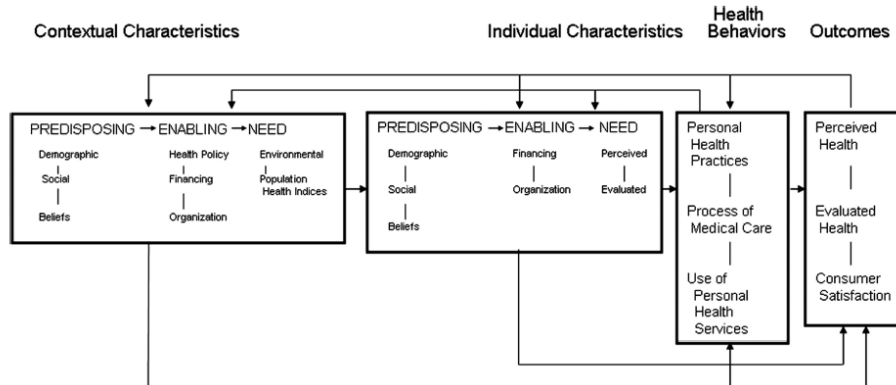


Figure 1.3: Andersen’s final model of use of health services: A behavioural model of health services use including contextual and individual characteristics. Source: Andersen, 2008

age and older people make more visits to the physician due to their health problems [Or, Z., Jusot, F., and Yilmaz, E., 2008]. However, it seems that they can also face important barriers to access to health care [Allin et al., 2006] as is shown by the fact that younger people are more likely to adhere to preventive practices [von Euler-Chelpin et al., 2008, Datta et al., 2006, Welch et al., 2008]. Women, in turn, are more likely to have chronic diseases [Borrell et al., 2000, Malmusi et al., 2011] and so greater need of health services and make more visits related to their reproductive and sexual health [Or, Z., Jusot, F., and Yilmaz, E., 2008, Habicht et al., 2009]. But some studies show that they may not be meeting their increased needs [Fernandez et al., 1999]. Attitudes, values and knowledge have proved to be strong determinants of the uptake of preventive services [Eaker et al., 2001] and they are a particular barrier to the practice of screening among immigrant women [Pons-Vigués et al., 2011]. However, in the case of immigrant people, there are other barriers related to their long work hours, to the existing administrative processes or to communication problems that may undermine their access to the services [Regidor

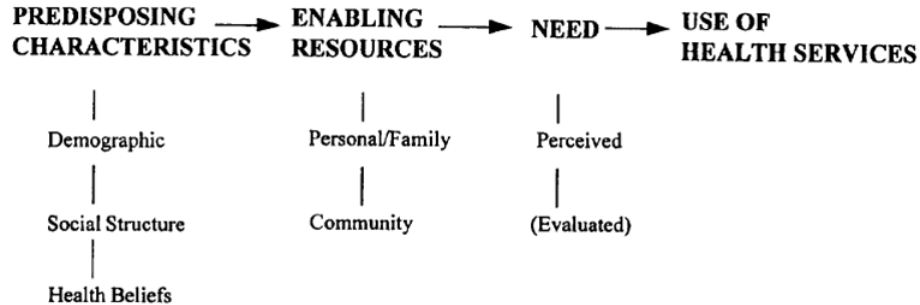


Figure 1.4: Andersen’s first model of use of health services: The Initial Behavioural Model (1960s). Source: Andersen, 1995

et al., 2009]. In the case of dental care, fear has been shown to be a strong determinant of infrequent visits to the dentist [Armfield et al., 2007]. According to Andersen, among the predisposing factors we can also find social structure measured through education, occupation or ethnicity [Andersen, 1995]. However, we understand SEP as a cross-cutting element affecting all predisposing factors, enabling factors and need, an aspect we will comment on later.

Enabling factors would be those factors that permit an adequate access to the services. In universal systems, having an additional insurance such as a private one facilitates the use of services and reduces waiting times [Borrell et al., 2001] and a high income allows the use of services not covered within the system. Among the enabling factors, life and working conditions will also have a significant weight. For example, for a woman, marriage as well as pregnancy and childbirth usually involve more contacts with health professionals, but the number of children can also act as a barrier to health services since it is an indicator of family burden [Datta et al., 2006]. Not having an employment contract, or having a precarious one, as well as long working hours can act as a barrier to access health services or can lead people to rely on those services with flexible hours such as emergency services [Regidor et al., 2009, Cots et al., 2002].

Finally, the last component of the model is need of health services, which would be a perceived or professionally defined health problem [Dahlgren and Whitehead, 2007]. This is generally the most immediate cause of use of health services [Aday and Andersen, 1974].

1.3.2 Socioeconomic position and individual determinants of use of health services

As we will see shortly SEP is associated with most of the introduced determinants of health care use. For example, knowledge, attitudes and beliefs about cancer can vary according to SEP [Peek and Han, 2004] as does dental fear [Armfield et al., 2006]. But also the perceptions that people have about their own needs vary since, for example, more disadvantaged groups tend to report less health problems even if clinical measures show their health is worse [Dahlgren and Whitehead, 2007]. Socioeconomic position is also associated to the factors that enable use of health services as those socioeconomically disadvantaged less often have additional private insurance [Borrell et al., 2001], have lower incomes and have worse living and working conditions. Finally, SEP relates to need of health services in the sense that socioeconomically disadvantaged people have worse health in a number of disease conditions, in particular, those susceptible to being resolved by the health care system.

The relationships of all these individual variables with SEP in relation to use of health services could be of different natures, in particular they could be mediators or confounders [MacKinnon et al., 2000]. Mediation and confounding are identical statistically and can be distinguished only on conceptual grounds. So our intention here is to try to explain the conceptual nature of the relationships to justify their posterior use. An indirect or mediated effect implies that the independent variable causes the mediator, which, in turn has an effect on the dependent variable. In contrast, a confounder is a variable related to two factors of interest that falsely obscures or accentuates the relationship between them. In the conceptual model most of the

individual determinants of use would be mediator variables, that is, SEP would have an effect on the intermediate determinants which in turn would have an effect on the use of health services. Need would be one of the exceptions, as the increased needs of disadvantaged groups may not lead them to use more services but the opposite. So we will try to remove the confounding effect of need, but we will assess its possible role as an effect modifier (presence of interaction) first. Age could also be a confounder as it is an indicator of need and of use of health services and could also be related to SEP since older individuals may have reduced budgets and prestige. Finally, gender is another axis of inequality, and although women have lower levels of good health, their use of certain services may not match their greater needs [Fernandez et al., 1999]. In addition, the determinants of use may vary between men and women, which is why both genders will be taken into consideration separately. As mentioned earlier, in preventive services individual characteristics may have considerable weight, and although there is not a clear hypothesis that they could confound the effect of SEP, we will adjust our analyses by as many determinants as possible just to avoid that case.

1.3.3 Structural determinants of SEP inequalities in use of health services

We have based the contextual part of our model on the models by Navarro et al (figure 1.5) and the Spanish adaptation of the CSDH Framework for Action on the Social determinants of Health (figure 1.6), although we have altered them to fit in a use of health services framework. We start from the premise that the socioeconomic and political context affects the distribution of resources as well as the position individuals or groups hold within societies. But this context will also have an effect on the unequal relationship that individuals with different SEP will have, in this case, with the use of health care services. The socio-economic context, together with the component regarding people’s SEP, will constitute the so-called structural

determinants of health inequalities[CSDH, 2008].

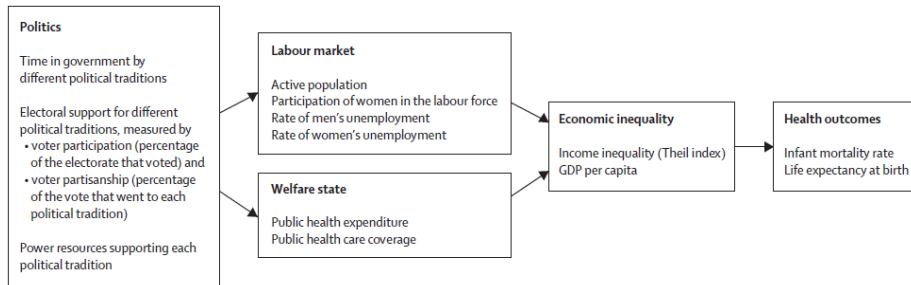


Figure 1.5: Relations between politics, labour market and welfare state policies, economic inequality, and health indicators. Source: Navarro et al., 2006

It is well known that political parties and political traditions have a strong influence on the existence of redistributive policies as well as other public policies such as education and health [Navarro and Shi, 2001, Borrell et al., 2009]. But in addition, the public and private share of health care financing and the reliance on out-of-pocket payments also depend on the political character of a country [Calikoglu, 2009]. In this respect, the influence and pressures from political interest groups, the industry and the private sector cannot be underestimated [Benach et al., 2012].

In countries where a National Health System with universal coverage exists, inequalities in access are lower, as has been found in a study comparing inequalities in the United States, a country in which an important part of the population does not have health insurance coverage, and Canada [Lasser et al., 2006]. However, even in systems with universal coverage there can be sectors of the population such as illegal immigrants who may not be covered under public programmes [Huber et al., 2008]. The financing systems which are based on ability to pay, such as those relying on taxes, are more equitable in their financing impact and promote less inequalities in access

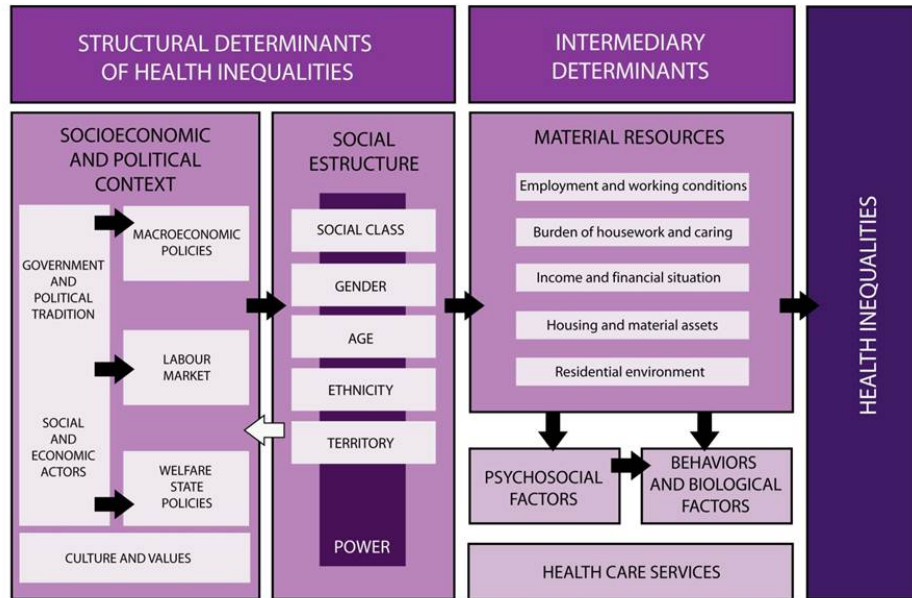


Figure 1.6: Conceptual framework of the determinants of social inequalities in health. Commission to Reduce Social Inequalities in Health in Spain. Source: Comisión para Reducir las Desigualdades en Salud en España

to care [Docteur and Oxley, 2003]. On the contrary, those systems in which users share more expenditure are more inequitable because expenditures represent a higher proportion of the incomes of the socioeconomically deprived groups and because the socioeconomically deprived are more frequent users due to their worse health. In addition they present important barriers to access to care. Co-payments, for example, have been found to dissuade the poorer from using the services [Whitehead et al., 2007] and fall more on the heavy users such as older people and those in need of healthcare. With regard to the organisation of systems, there are certain characteristics which can favour the existence of inequalities. For example, those systems in

which the GP acts as a gatekeeper provide more equitable specialist use [Or, Z., Jusot, F. , and Yilmaz, E., 2008], however, this may not be the case when private options are offered. As already remarked, in preventive services there is no factor such as need that triggers the use of health services. In this regard, many countries have established population-based programmes for the secondary prevention of cancer where the persons in the target population are individually identified and personally invited to attend screening [von Karsa et al., 2008], as opposed to those countries where screening is offered opportunistically, that is, people attend the screening on their own initiative. Population based programmes seem to be able to reach the disadvantaged sectors of the population and thus contribute to the reduction of inequalities in screening [Miles et al., 2004].

Other characteristics of the social and political context could also influence inequalities in use of health care, although to a lesser extent. For example, labour market policies have an effect on the conditions in which people work and, as mentioned above, these may have an effect on their relationship with the health care system.

1.3.4 Conceptual framework of the determinants of SEP inequalities in use of health services

The final form of the conceptual model of this thesis can be seen in figure 1.7. As introduced in previous sections, our model presupposes that SEP has an effect on the “classical” determinants of health care use such as the predisposing factors, the enabling characteristics and need, and this creates socioeconomic inequalities in use of health care services. These inequalities in use will be shaped by certain structural factors, though we will centre here on those relating to the health care system. Depending on the type of service, either one or another factor will have more weight which we will try to explain in the next two sections.

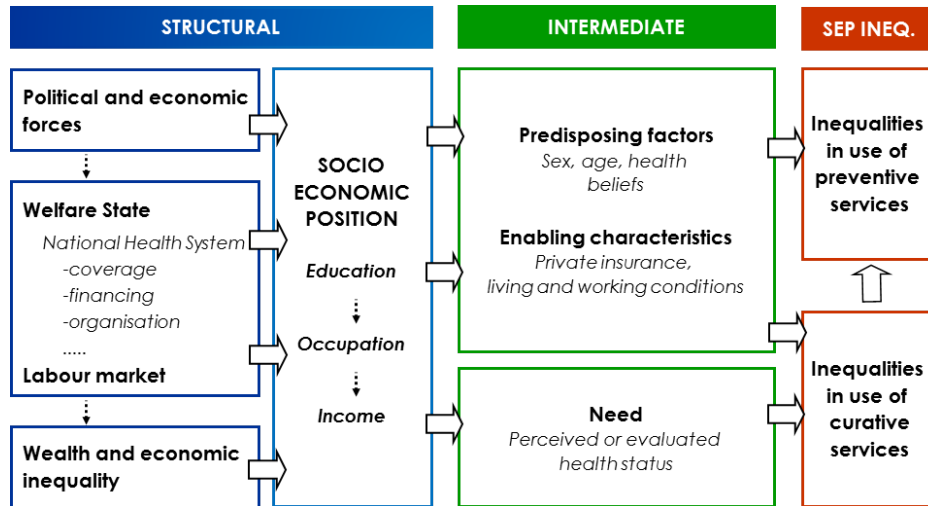


Figure 1.7: Conceptual framework for the analysis of socioeconomic inequalities in use of health care services. Source: personal compilation

Determinants of SEP inequalities in use of curative services

As explained before certain characteristics of health care systems can contribute to making curative services inequitable. The lack of coverage in terms of who cannot access the public system (in Europe usually the illegal immigrants and so the most deprived), as well as the lack of coverage referring to the number of services that do not belong to the health benefit basket, may be determinants of inequalities in use of health services. The type of financing of the health system (taxation, social health insurance, supplementary or complementary private health insurance) and of the services in particular (in form of out-of pocket payments) will also have a decisive role in the distribution of use among SEP groups. Finally the organisation of the health care system may also have some effect on inequalities for example through GP gate keeping, which is more likely to provide

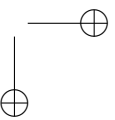
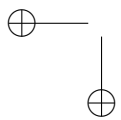
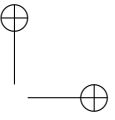
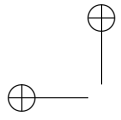
equitable access to specialised care.

The characteristics of the health care system will make SEP (measured through education, occupation or income) have a stronger or weaker relationship with the intermediate factors and with the use of health services. In the most equitable curative services (completely covered, free of charge, etc.) need is likely to explain most of the use of curative services. However, in less equitable systems and services, SEP, through its relationship with enabling characteristics, mainly income and private insurance status, will have a strong influence on the use of these services.

Determinants of SEP inequalities in use of preventive services

In preventive services the organisation of the services will play a decisive role. Population-based cancer screening programmes, through their invitations, reach the disadvantaged sectors of the population, but in addition they are more likely to offer the tests free of charge, thus contributing to the reduction of inequalities in screening.

In preventive services predisposing factors may have more weight than in curative services and need may not play any role. Health and cultural beliefs have been found to influence the uptake of screening practices and they may vary according to SEP. But also some enabling characteristics such as living and working conditions, including marital status, parity or employment status, may have a role. In addition women may have screening tests more often, through their private insurance, which is directly related to SEP. Finally, inequalities in curative services can also result in inequalities in preventive services as contacts with a doctor may lead to subsequent referrals to preventive practices. The relationship between having a regular GP and screening has been well established [von Euler-Chelpin et al., 2008, Dupont et al., 2008].



Chapter 2

JUSTIFICATION

Socioeconomically disadvantaged individuals show poorer results across a range of health indicators. Thus, when socioeconomic inequalities in use of health care exist, they represent a double burden: poor people not only have worse health but also have poorer access to health care when they do fall sick [Whitehead et al., 2007]. Health services are not the main determinant of health or health inequalities, however they have an important role coping with and ameliorating the damage to health caused by health inequalities [Whitehead et al., 1997]. Inequalities in health care increase the disease burden, widen social inequities in health and generate adverse social and financial effects, including poverty [Dahlgren and Whitehead, 2007]. In addition, from a human rights perspective, health care is a common good and should be available for everybody according to their needs and independently of their SEP [CSDH, 2008]. In Spain, although socioeconomic inequalities in the use of health care services have been studied for specific time periods, the evolution of these inequalities has not been investigated in detail.

Most developed countries have established nearly universal systems of healthcare coverage for their populations, including comprehensive packages of medical services. However, pressure on health care funding has led many countries to introduce changes such as

reconsidering their public-private mix that threaten the universality of their welfare systems [Hanratty et al., 2007, van Doorslaer et al., 2006]. In addition, there are some services such as dental care, which, in some countries does not form part of the benefits package and in most countries is poorly covered, that can present strong inequalities in their use. The variability existing in Europe with regard to coverage of public dental services gives us the opportunity of assessing whether those countries with higher public dental coverage are more equitable in their delivery.

Although it has been demonstrated that policies that encourage screening attendance, such as population-based programmes have a positive impact on participation [Bonfill et al., 2001] we did not find any paper which systematically analysed the association between the implementation of a population-based programme and the magnitude of inequalities taking into account different European countries. The impact of these policies on equity would underline the potential benefits of population-based programmes for the secondary prevention of breast and cervical cancer, which are the first and second most commonly diagnosed cancers among women worldwide [Garcia et al., 2007].

The present thesis aims to give an overview of the existence of socioeconomic inequalities in the use of a set of health care services in Spain and in Europe in recent years. In addition, it will attempt to show the benefits in terms of mitigation of inequalities of public coverage and financing of the services and of population-based programmes to attend cancer screening.

Chapter 3

HYPOTHESES AND OBJECTIVES

3.1 Hypotheses

The hypotheses we wanted to test in this thesis were as follows:

- There are no socioeconomic inequalities in the use of primary health care services, hospitalisations and emergencies in Spain.
- There are socioeconomic inequalities in the use of outpatient specialist services in Spain and these have remained stable or have diminished over the last few years.
- In Europe, there are marked socioeconomic inequalities in the use of dental care services.
- Socioeconomic inequalities in the use of dental care services are larger in countries where dental care is not covered at all than in countries where dental care services are somehow covered in the public system.
- In Europe, there are socioeconomic inequalities in breast and cervical cancer screening in the countries which do not have

population-based screening programmes.

- The prevalence of screening is higher in countries with population-based cancer screening programmes.
- Socioeconomic inequalities in screening are lower in countries with population-based cancer screening programmes.

3.2 Objectives

The following objectives were formulated:

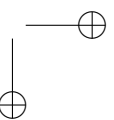
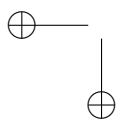
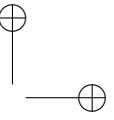
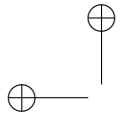
3.2.1 General objectives

- To describe socioeconomic inequalities in the use of health care services in Catalonia, Spain and Europe.
- To determine whether the public coverage of the services has an influence on the magnitude of socioeconomic inequalities in use of such services.
- To determine whether policies aimed at increasing the uptake of screening such as population-based programmes have an influence on the magnitude of socioeconomic inequalities in screening.

3.2.2 Specific objectives

- To describe socioeconomic inequalities in health and health-related behaviours as a measure of need of health services in Catalonia and their evolution in the last few years.
- To describe socioeconomic inequalities in the use of different health services in Catalonia and Spain and their evolution in the last few years.

- To describe socioeconomic inequalities in the use of dental care services in Europe.
- To determine whether socioeconomic inequalities in the use of dental care services are larger in countries where dental care is not covered at all in the public system than in countries where dental care services are somehow covered.
- To describe socioeconomic inequalities in breast and cervical cancer screening in Europe.
- To determine whether the prevalence of breast and cervical cancer screening is higher in countries with population-based cancer screening programmes than in countries without population-based cancer screening programmes.
- To determine whether socioeconomic inequalities in breast and cervical cancer screening are higher in countries without population-based cancer screening programmes than in countries with population-based cancer screening programmes.



Chapter 4

PAPERS

The papers included in this thesis and that cover the specific objectives stated in the previous section are as follows:

Paper 1: Borrell, C., Palència, L., Rodríguez-Sanz, M., Malmusi, D., Bartoll, X., Puigpinós R. (2011). [\[Trends in social inequalities in health in Catalonia, Spain\]](#). Med. Clin. (Barc.), 137 Suppl 2:60-5. Spanish.

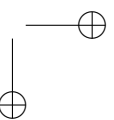
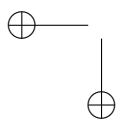
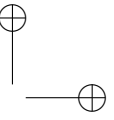
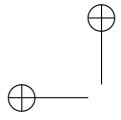
Paper 2: Palència, L., Espelt, A., Rodríguez-Sanz, M., B. Rocha, K., Pasarín, M.I., Borrell, C. (2011). [Trends in social class inequalities in the use of health care services within the Spanish National Health System, 1993-2006](#). Eur. J. Health Econ. 2011. [Epub ahead of print]

Paper 3: Palència, L., Espelt, A., Cornejo-Valle, M., Borrell, C. Socio-economic inequalities in the use of dental care services in Europe: what is the role of public coverage? (Under review in Community Dent. Oral Epidemiol.)

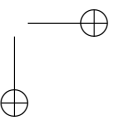
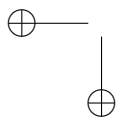
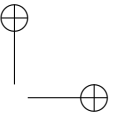
Paper 4: Palència, L., Espelt, A., Rodríguez-Sanz, M., Puigpinós, R., Pons-Vigués, M., Pasarín, M.I., Spadea, T., Kunst, A.E., Borrell, C. (2010). [Socio-economic inequalities in breast and](#)

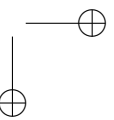
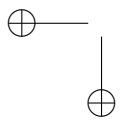
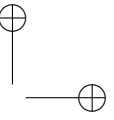
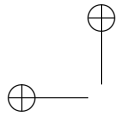
[cervical cancer screening practices in Europe: influence of the type of screening program.](#) *Int. J. Epidemiol.*, 39(3):757-65.

- 4.1 Borrell, C., Palència, L., Rodríguez-Sanz, M., Malmusi, D., Bartoll, X., and Puigpinós, R. (2011). [\[Trends in social inequalities in health in Catalonia, Spain\]](#). *Med. Clin. (Barc.)*, 137 Suppl 2:60-5. Spanish.

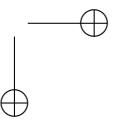
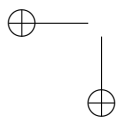
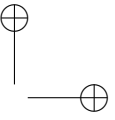
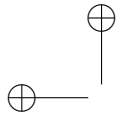


- 4.2 Palència, L., Espelt, A., Rodríguez-Sanz, M., Rocha, K. B., Pasarín, M.I., and Borrell, C. (2011). [Trends in social class inequalities in the use of health care services within the Spanish National Health System, 1993-2006](#). *Eur. J. Health Econ.* [Epub ahead of print.]





- 4.3 Palència, L., Espelt, A., Cornejo-Valle, M., and Borrell, C. Socio-economic inequalities in use of dental care services in Europe: what is the role of public coverage? (Under review in *Community Dent. Oral Epidemiol.*)



SOCIO-ECONOMIC INEQUALITIES IN USE OF DENTAL CARE SERVICES IN EUROPE: WHAT IS THE ROLE OF PUBLIC COVERAGE?

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ABSTRACT

Objectives: The aim of this study was to describe inequalities in the use of dental care services according to socio-economic position (SEP) in individuals aged 50 or older in European countries in 2006, and to determine the influence of the public coverage of dental services on the extent of inequality.

Methods: A cross-sectional study of 12,364 men and 14,692 women aged 50 or over from 11 European countries was carried out. The dependent variable was use of dental care services within the previous year. The independent variables were education level as a measure of SEP, ability to chew used as a surrogate for need of dental services and whether services were somehow covered within the country's public system. Age-standardised prevalences of dental care according to SEP were calculated and age-adjusted indices of relative inequality (RII) were computed according to sex, ability to chew and type of dental coverage.

Results: SEP inequalities were higher in those countries where dental care was not covered at all than in those countries where there was some degree of coverage. For example men who could chew and lived in countries partially covered had a RII of 1.39 (95%CI:1.29-1.51) while those from countries not covered had a RII of 1.96 (95%CI:1.72-2.23). Women who could not chew and lived in countries partially covered had a RII of 2.15 (95%CI:1.82-2.52) while those from countries not covered had a RII of 3.02 (95%CI:2.47-3.69).

Conclusions: Our results highlight the importance of public systems in the mitigation of inequalities.

INTRODUCTION

Oral health is a condition in which people can speak, eat and socialize without active (oral) disease, discomfort or embarrassment (1). Having good levels of oral health is important by itself but also because it has been linked to general health (2). Inequalities in oral health according to socio-economic position (SEP) have been largely documented, people of disadvantaged positions being more likely to have poor oral health in several oral disease conditions (1,3). The determinants of these inequalities include differential access to the main determinants of oral health such as a balanced diet and certain health related behaviours such as smoking or alcohol consumption (1,4).

Dental visits are also a determinant of oral health at least when made on a regular basis (5,6). However, SEP inequalities in dental care have also been described, socio-economically advantaged people being more likely to have seen a dentist (7,8). In other words, those socio-economically disadvantaged not only have major needs of dental care but also have less access to it, exacerbating the existing inequalities.

Incidence of oral diseases increases with age and has a disproportionate effect in elderly people (1) so older people may be a particularly vulnerable group with regard to oral health. In addition their ability to pay is usually reduced so the costs of dental treatment may create an abnormal burden on them.

Access to dental services seems to be limited by the high costs of care and treatment. In this regard, public funding of dental care provides a means of overcoming the divergence between ability to pay and need for care (9). However, it appears that health care systems are increasingly excluding dental care from its package of benefits (10). Yet, within Europe there is variability in the degree of public coverage of dental care in the adult population, with countries like Spain covering only tooth extractions or Sweden where all types of treatment are subsidized and a special high-cost protection system for those aged 65 years

or over exists (11). The variability existing in Europe with regard to coverage of public dental services gives us the opportunity of assessing whether those countries with higher public dental coverage are more equitable in their delivery. To our knowledge no study has systematically analysed the association between the degree of public dental coverage and the magnitude of inequality.

The aim of this study was to describe inequalities in the use of dental care services according to SEP in individuals aged 50 or older in European countries in 2006, and to determine the influence of the public coverage of dental services on the extent of inequality.

MATERIALS AND METHODS

Design, study population and information sources

A cross-sectional study was performed. The study population consisted of 12,364 men and 14,692 women aged 50 or over and living in 11 European countries (Austria, Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden and Switzerland) in 2006.

Data were extracted from the second wave of the Survey of Health, Ageing and Retirement in Europe (SHARE 2006) (12), a cross-national panel database of micro data on health, socio-economic status and social and family networks of European individuals aged 50 or over. The sample consisted of a baseline sample drawn in the first wave (SHARE 2004) plus a refreshment sample drawn in the second wave, and, to deal with problems of unit non-response and sample attrition SHARE provides calibrated weights (which depend on the household design weight and the respondent's calibration variables). In the last version of the data (Release 2.5.0: May 24th, 2011) these weights were still not available for Ireland, so this country could not enter the study.

Variables

The dependent variable was use of dental care services, assessed through the question ‘During the last twelve months, have you seen a dentist or a dental hygienist? (visits for routine controls, for dentures and stomatology consultations included): Yes; No’

The main independent variable was socio-economic position assessed as the maximum education level achieved and coded with the 1997 International Standard Classification of Education (ISCED-97) which allows for international comparisons (13). The categories of this variable are: Pre-primary education (0); Primary education or first stage of basic education (1); Lower secondary or second stage of basic education (2); Upper secondary education (3); Post-secondary non-tertiary education (4); First stage of tertiary education (5) and Second stage of tertiary education (6). In order to have enough sample in each category and country, some categories were combined as follows: Lower secondary education or lower (0,1,2); Upper secondary or Post-secondary education (3,4) and Tertiary education (5,6).

Other individual-level covariates analysed were: age, used as a continuous variable in the models and with 5-year categories to standardise, and ability to chew assessed through the question ‘Can you bite and chew on hard foods such as a firm apple without difficulty?: Yes; No’ used as a surrogate for oral health status. This variable was used to take into account the different health care needs of the socio-economic groups.

Data regarding the degree of public dental care coverage in each country around 2006 (the year for which survey data is available) was obtained from a review of the literature. Specifically, we used the WHO/Europe Health system reviews (HiTs) (14-26), which are country-based reports, launched by the European Observatory on Health Systems and Policies, that provide a detailed description of each European health care system. To cover gaps in the description of dental care we also used a review on Oral Healthcare Systems published in 2004 (11). Three of the authors independently reviewed all the documents and

classified each country according to the degree of public dental care coverage. Dental care was considered to be partially covered if curative services were covered by the public health system either with a coinsurance or a reimbursement. Dental care was considered not covered if none of the services, or only emergencies, were covered by the public health system. None of the countries had completely covered dental care services (see appendix 1). After sharing and discussion, discrepancies persisted among eastern countries, probably because there was being a transition from the public to the private sector (27) and there were relatively few means available for this health care sector in relation to the treatment needs of the populations (28). For this reason the authors decided to exclude from the analysis the two eastern countries participating in SHARE (Czech Republic and Poland).

Data analysis

All analyses were performed separately for men and women and weights derived from the sample design and from the non-response pattern were used in all calculations.

For each country, age-standardised (using the direct method (29) and 5-year age groups from the whole survey sample) prevalences of ability to chew were calculated for each educational level. Age-standardised prevalences of visits to the dentist were also calculated for each educational level and ability to chew status. Age-adjusted robust Poisson regression models (30) were fitted to examine the association between dental visits and education level in each country. In these models, education level was introduced as a continuous variable, with three values from 0 to 1, which reflected the educational level distribution in each country. As a result we obtained the Relative Index of Inequality (RII) and the Slope Index of Inequality (SII) (31), which can respectively be interpreted as the prevalence ratio and difference at the two extremes of the educational spectrum (32) (in our case highest compared to lowest).

These models were first fitted separately for each country, including an interaction term between education level and ability to chew to assess if the effect of SEP differed according to oral health status. Education level inequalities in each of the levels of ability to chew were inferred from the models. To check for the effect of public coverage on inequalities, a model including all the countries was fitted. In these models, in addition to the interaction between education level and ability to chew, we assessed the interaction between education level and the type of coverage to see if the magnitude of inequalities differed according to the degree of public coverage. In these models the country was introduced as a categorical variable to adjust for its potential confounding effect.

RESULTS

Seventy-one percent of men and 63% of women were younger than 70 and around 22% of men and 16% of women had tertiary studies (table 1). About 17% of the men in the sample had reduced ability to chew while this percentage was 22% in women. Nearly 55% of the respondents had visited the dentist in the previous year.

Ability to chew was systematically higher in higher educational groups in the countries under study and in both sexes (table 2) with few exceptions. Differences were marked for example in Austrian men or Italian women, where around 87% of the individuals in the highest educational group could chew firm things while about 67% in the lowest educational group could. In the global sample and once country and age were taken into account, there were significant relative differences in the ability to chew among the different educational levels in both sexes (results not shown).

Prevalence of dental visits was slightly but consistently higher in women than in men in each combination of education level and ability to chew (table 3), as well as in those who could chew well in comparison to those who could not, for any given educational level. Prevalence

of dental visits also appeared to be higher in those countries where dental care was covered to some degree in each of the categories. Prevalence of visits showed a gradient, increasing as educational level increased. This gradient was independent of the other covariates, for example in men who could not chew well and lived in countries not covered percentages were 31.3, 43.7 and 54.3% for the lowest to highest education levels respectively, and in women who could chew and lived in countries with some degree of coverage the corresponding percentages were 56.3, 66.1 and 73.2%.

The models confirmed the existence of education level inequalities in visits to the dentist in all the countries, at least in one of the two oral health statuses, and in most cases in both (table 4). For example, relative inequalities in men who could not chew well ranged in covered countries from 1.11 in Sweden to 5.43 in Austria, while in countries not covered it ranged from 1.90 in Switzerland to 8.77 in Spain. Statistically significant interactions between education level and ability to chew and between education level and public coverage were found (p -value <0.001 in both cases and both sexes). Indeed, socioeconomic inequalities were statistically significantly higher in those individuals with decreased ability to chew than in those with regular ability to chew (table 4, figure 1). For example, in countries not covered, women who could chew well and had a higher SEP were 1.93 (95%CI: 1.70-2.18) more likely to have seen a dentist than those with lower SEP while women who could not chew well with higher SEP were 3.02 times (95%CI: 2.47-3.69) more likely to have seen a dentist than those with lower SEP. What is more, education level inequalities were higher in those countries where dental care was not covered at all than in those countries where dental care was covered to some degree. For example in men who could chew well, those living in countries partially covered had a RII of 1.39 (95%CI: 1.29-1.51) while those from countries not covered had a RII of 1.96 (95%CI: 1.72-2.23). And in women who could not chew well those living in countries partially covered had a RII of 2.15 (95%CI: 1.82-2.52) while those from countries not covered had a RII of 3.02 (95%CI: 2.47-

3.69). Nonetheless, in the group of persons with poor oral health the confidence intervals overlapped, probably due limited sample sizes.

The absolute inequalities given by the SII showed exactly the same pattern as the relative ones (see appendix 2).

DISCUSSION

SEP inequalities in oral health exist throughout Europe, socio-economically deprived people being more likely to have reduced ability to chew. In contrast, socio-economically advantaged older adults are more likely to have seen the dentist and this happens independently of their oral health status. When the degree of public dental care is taken into account, socio-economic inequalities are more pronounced in countries where dental care is not covered at all by the public system than in those where it is partially covered.

Socio-economic inequalities in oral health and dental care

SEP inequalities in oral health have been well documented (3,33). Such inequalities are mediated by some health-related behaviours such as tobacco, alcohol consumption or diet, but certainly others that partly determine them such as access to healthy food, to dental products and to dental services (1,4). The role of dental services in those inequalities is controversial with some authors finding that it has an important role (2,34) and others not finding a role at all (35).

Socio-economically disadvantaged people not only have worse oral health but also use less dental services (34,36-37). In this regard, several multi-country studies have found strong socio-economic inequalities in most countries under study (7,38). In addition, one study also based in SHARE data found income-related inequality in all European countries comprising the study (8). Our study goes one step further, in that we have measured the role of public

dental care on inequalities and assessed the relationship between oral health, dental attendance and socio-economic status in addition to using different variables.

Interaction between socio-economic position and oral health

A health system is equitable if it matches access to need regardless of ability to pay, and for that reason the use of services across different socio-economic groups must be considered in relation to their differing levels of need (39). Some studies in dental care have done so by standardising or adjusting utilisation by oral health status but that would mean assuming that the effect of socio-economic position is the same across different levels of need. In this study, however, we have found an interaction between socio-economic position and oral health showing that the effect of socio-economic position is stronger among those with greater needs of health care. A previous study found an interaction between socio-economic disadvantage and seeking dental care in relation to self-rated oral health (34), as both studies are cross-sectional, the conclusions would be similar. We have hypothesised that this could happen because those who have less ability to chew may also have fewer teeth and people who have fewer teeth are less likely to perceive a need for dental services (40). This could be particularly increased among socio-economically disadvantaged groups. Another possible explanation could be that socio-economically disadvantaged people with a decreased ability to chew have a worse oral health status than the advantaged ones even if both cannot chew well. As current oral health strongly reflects the past use of health services (36), they could be a group especially prone to attend the dentist less on a regular basis.

Influence of public dental care coverage

We did not find any study measuring specifically the influence of public dental care coverage in socio-economic inequalities in dental attendance. It has been found that being covered by

a dental care model is a determinant of dental care use in children (41) and in fact in this study we also saw that the prevalence of dental care was higher in those countries covered. Specifically in inequalities, several Spanish studies found that dental care, the only service not covered at all within the system, had the highest inequalities (42,43). Another study found that providing the poorest people with dental care insurance would substantially reduce (although not eliminate due to the gradient in the association) inequity in dental care utilisation (36). And in a study measuring inequalities after the introduction of universal coverage in Thailand (44) inequalities persisted mainly because of the limited scope of benefit packages in treatment costs and due to the presence of the private sector in dental care.

Health care coverage provides financial security against the costs of unexpected illness and assists access to treatments and preventative services (45). In contrast, out-of pocket payments fall more in those who use more health services (39), usually the more deprived groups due to their increased needs, creating financial barriers to access to care. Some systems opt for protecting the most deprived, but as already discussed, the gradient of socio-economic position affects the whole society so this does not entirely eliminate the problem. Among others, the solution lies in a quality universal system, with sufficient funding and enough benefits for everybody to persuade people from seeking private options (46). Regarding dental care, socio-economic inequalities seem to have been accepted within health care systems at least in comparison with other branches of medicine (2). In addition, there is a tendency in many countries for reduced public dental care funding (27). In a sector in which the private sector has such an important role and that is used mainly in a preventive way, the financial crisis and the subsequent impoverishment of families, mainly the socio-economically deprived, can have devastating effects in term of inequalities. Precisely now, the socio-economic inequalities in oral health and dental care need to be monitored and kept in consideration.

Limitations

The main limitation of this study is that the measure of oral health was self-reported. However, self-reported ability to chew has been set as an important dimension of oral health and has been related to oral health-related quality of life (47). It seems that better educated older Europeans are more likely to rate a given health state negatively (48), but this would only reassert the presence of inequalities. Another limitation of the study is its cross-sectional nature. Having acquired dental services reduces the onset of chewing difficulties (49) which together with the fact that most visits are preventive (36) is one of the reasons why, agreeing with current literature, we observe that paradoxically those with good oral health have more visits to the dentist. However, we tried to remove its possible confounding effect by presenting socio-economic inequality according to ability to chew status and the effect of socio-economic position and of dental care coverage was seen in both groups. Finally, multilevel models could not be used to the limited number of countries in the study.

CONCLUSIONS

Socio-economic inequalities in dental care exist all throughout Europe but in those countries with some degree of public coverage inequalities are less marked. Health care is a common good and should be available for everybody according to their needs and independent of their socio-economic position (50), and this does not seem to be the case for dental care.

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Table 1. Distribution of study variables by sex.

	Men		Women	
	N	%	N	%
Age				
50-59	5,021	40.6	5,136	34.9
60-69	3,775	30.5	4,124	28.1
70-7779	2,542	20.6	3,364	22.9
80 or +	1,027	8.3	2,068	14.1
Educational level				
Lower secondary	5,113	41.4	7,877	53.6
Upper secondary	4,172	33.7	4,040	27.5
Tertiary	2,768	22.4	2,396	16.3
<i>Missing</i>	311	2.5	379	2.6
Ability to chew				
Can chew	10,184	82.4	11,369	77.4
Cannot chew	2,136	17.3	3,263	22.2
<i>Missing</i>	44	0.3	60	0.4
Visits to the dentist				
No	5,508	44.5	6,467	44.0
Yes	6,783	54.9	8,154	55.5
<i>Missing</i>	73	0.6	71	0.5
Total	12,364	100.0	14,692	100.0

Table 2. Number of people interviewed in each country and educational level. Age-standardized prevalence (%) of ability to chew according to sex and educational level (LS=Lower Secondary, US= Upper Secondary, T=Tertiary) in the countries under study.

	Total			Men				Women					
	N	LS		US		T		LS		US		T	
		N	N	%	N	%	N	%	N	%	N	%	N
Austria	1,278	96	66.8	314	82.3	160	86.9	296	79.4	310	82.7	103	77.7
Belgium	2,979	608	71.4	368	76.6	384	79.8	847	70.6	394	78.2	378	76.1
Denmark	2,478	167	75.6	571	80.2	427	85.2	404	72.8	442	80.8	467	83.0
France	2,779	528	80.4	444	81.2	280	88.8	858	74.9	394	75.9	276	84.7
Germany	2,454	64	68.6	672	81.4	374	85.1	380	75.1	697	81.3	268	83.7
Greece	2,922	771	78.9	358	83.9	237	84.1	1085	72.0	335	78.1	136	66.2
Italy	2,873	861	73.0	320	89.5	114	82.5	1227	67.7	288	80.2	64	87.6
Netherlands	2,499	510	83.6	319	85.9	340	88.1	793	82.0	284	85.0	252	86.7
Spain	2,102	767	80.6	82	87.6	106	92.2	964	78.5	87	80.4	96	88.9
Sweden	2,630	604	91.5	366	92.1	262	96.7	688	87.6	403	92.4	307	95.5
Switzerland	1,372	161	82.9	376	87.9	96	93.8	306	84.6	390	90.9	43	84.6
Total*	26,366	5,137	77.5	4,190	84.2	2,780	86.9	7,848	76.0	4,024	81.8	2,390	83.2

*standardised by age and country

Table 3. Age standardized prevalence (%) of dental visits according to sex, ability to chew and educational level (LS=Lower Secondary, US=Upper Secondary, T=Tertiary) by country and type of oral health care coverage.

	Men						Women					
	Can chew			Cannot chew			Can chew			Cannot chew		
	LS %	US %	T %	LS %	US %	T %	LS %	US %	T %	LS %	US %	T %
Partially covered												
Austria	57.9	54.7	55.5	12.8	38.3	51.7	46.0	55.3	59.5	36.4	52.9	63.2
Belgium	42.7	57.6	64.9	32.1	42.7	58.3	46.6	53.2	70.2	31.8	48.8	57.3
Denmark	62.5	82.1	88.9	46.1	68.4	75.3	68.8	85.5	92.5	59.6	77.6	73.9
France	40.1	44.7	59.8	26.5	46.4	42.7	47.0	63.3	63.7	34.8	54.1	66.8
Germany	66.1	68.8	80.5	41.3	58.8	83.6	68.7	74.9	86.6	56.2	74.8	83.4
Greece	32.8	35.9	43.8	25.7	36.1	27.7	37.4	45.9	51.1	40.5	51.9	52.1
Sweden	75.1	83.0	87.7	71.1	50.4	46.8	80.4	85.5	86.5	58.7	71.0	80.3
Total*	52.3	60.6	69.2	38.0	49.0	55.1	56.3	66.1	73.2	45.4	61.9	68.0
Not covered												
Italy	32.0	50.0	44.8	24.2	39.1	55.2	29.7	56.2	37.1	32.8	43.3	48.5
Netherlands	53.7	71.0	78.7	29.2	49.8	63.7	58.2	76.4	81.0	48.6	60.4	79.7
Spain	22.9	45.8	45.7	27.3	40.0	54.4	28.7	33.9	49.1	31.3	37.6	28.0
Switzerland	66.5	70.9	87.4	54.6	52.8	33.2	67.8	81.5	79.1	46.3	78.8	47.4
Total*	41.8	58.9	61.0	31.3	43.7	54.3	43.9	60.6	58.6	39.4	51.8	53.3

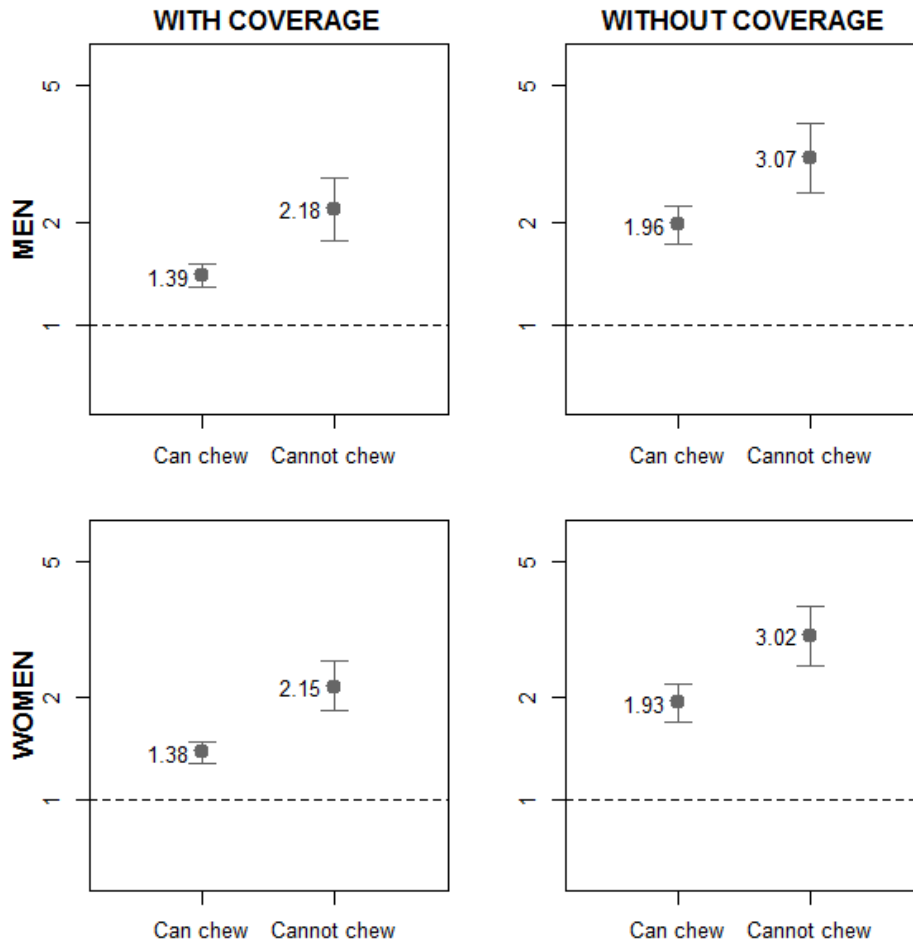
*standardised by age and country

Table 4. Relative Index of Inequality (RII) (highest education level compared to lowest) and 95% confidence intervals according to sex and ability to chew by country and type of dental care coverage.

Type of coverage and country	Relative inequalities			
	Men		Women	
	Can chew RII (95% CI)	Cannot chew RII (95% CI)	Can chew RII (95% CI)	Cannot chew RII (95% CI)
Partially covered				
Austria	0.97 (0.69-1.37)	5.43 (2.14-13.73)	1.55 (1.17-2.07)	4.08 (1.87-8.91)
Belgium	1.85 (1.49-2.3)	2.65 (1.62-4.33)	1.85 (1.5-2.27)	3.09 (1.97-4.86)
Denmark	1.35 (1.2-1.53)	1.74 (1.19-2.53)	1.45 (1.29-1.63)	1.61 (1.17-2.22)
France	1.78 (1.25-2.55)	2.06 (0.89-4.78)	1.64 (1.26-2.13)	2.81 (1.58-4.99)
Germany	1.31 (1.11-1.54)	2.03 (1.34-3.06)	1.28 (1.08-1.52)	2.43 (1.58-3.73)
Greece	1.47 (1.06-2.04)	1.66 (0.60-4.65)	1.32 (0.96-1.79)	1.75 (0.87-3.52)
Sweden	1.24 (1.09-1.42)	1.11 (0.47-2.60)	1.17 (1.05-1.3)	1.79 (1.08-2.94)
Total*	1.39 (1.29-1.51)	2.18 (1.77-2.69)	1.38 (1.28-1.48)	2.15 (1.82-2.55)
Not covered				
Italy	2.23 (1.52-3.26)	3.93 (1.91-8.08)	2.79 (1.93-4.04)	1.92 (0.86-4.26)
Netherlands	1.66 (1.4-1.96)	3.21 (1.54-6.69)	1.62 (1.38-1.91)	2.55 (1.54-4.22)
Spain	3.51 (2.03-6.07)	8.77 (3.55-21.66)	2.52 (1.61-3.95)	2.74 (0.83-9.06)
Switzerland	1.39 (1.14-1.68)	1.90 (0.82-4.4)	1.43 (1.19-1.73)	3.35 (1.71-6.56)
Total*	1.96 (1.72-2.23)	3.07 (2.42-3.89)	1.93 (1.70-2.18)	3.02 (2.47-3.69)

*age and country-adjusted

Figure 1. Relative Index of Inequality (RII) (highest education level compared to lowest) and 95% confidence intervals according to sex, ability to chew and type of dental care coverage.



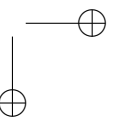
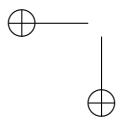
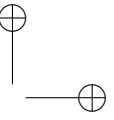
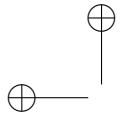
Appendix 1. Coverage of oral health services for adults and older people in the countries under study around 2006

Country	Coverage	Degree of coverage
Austria	Partially covered	Restorative and some surgical treatments are fully covered by the sickness insurance. For some treatments and within some sickness insurances patients contribute 10% to 20% (depending on the region). For removable prostheses patients have to pay between 25% and 50% of the costs ¹¹ . The cost of fixed dentures is only reimbursed in exceptional cases ¹⁴ .
Belgium	Partially covered	Preventive dental care and extractions are fully reimbursed ¹⁵ . Patients pay the dentist and are then reimbursed at 75% of the nationally agreed fees for restorative care, removable dentures, minor oral surgery and limited preventive care ¹¹ . Periodontal treatment, fixed prostheses and oral implants are not covered ¹¹ . For insured people with preferential reimbursement, all dental services are free ¹⁵ .
Denmark	Partially covered	Most adults obtain oral healthcare from the private sector and a proportion of the cost of this care is refunded. The refund rates vary from 30-65% depending on the patient's age and the category of treatment ¹¹ . Some of the payments, in particular the curative services, are covered by the regions ¹⁷ .
France	Partially covered	Patients pay full fees to the dentist. The mandatory insurance system reimburses about 70% of these fees on a fee-per-item basis for all standard treatments such as extractions, conservative dentistry and prostheses as well as scaling and sealing. About 5% of the population belonging either to low-income groups or to groups without any income, benefit from free care. Most prosthodontic treatment is paid for entirely by patients ¹¹ .
Germany	Partially covered	The sick funds pay 100% of costs for examinations, radiographic investigations, fillings, oral surgery, preventive treatments for defined groups, periodontal care and endodontic treatment. Prosthetic care such as dentures, crown and bridge work attract a subsidy of 50% to 60%. Implants are not covered at all ¹¹ .
Greece	Partially covered	Three ways of receiving oral health care: dental departments of those SIFs (Social Insurance Funds) that operate polyclinics where treatment is provided free of charge; private dental practitioners contractors with a SIF that provide some treatments free of charge and some with co-payments; independent dental practitioner without any contract with a SIF, in which case patients claim back 20-30% of the costs from the SIF. The third option (reimbursement) is common practice ¹¹ .
Italy	Not covered	95% of dentistry is provided by private practitioners. Private practise is in the most part outside any existing insurance schemes and patients pay dentists directly for their care and treatment ¹¹ . Dental health care is guaranteed by the government for specific populations such as children (0-16 years old), vulnerable people (disabled, people with HIV, people with rare diseases) and individuals who need dental health care in some urgency/emergency cases ²¹ .
Netherlands	Not covered	Cover is limited to dental care for children and preventive dental care for adults, in addition to specialist surgical treatment. People with a specific dental complaint, or a physical or mental handicap resulting from medical treatment, are entitled (under specific circumstances and if required) to integral dental care ²² .
Spain	Not covered	Dental care for adults is excluded from public funding ²⁴ . The public sector offers free tooth extractions ¹⁰ .
Sweden	Partially covered	Within general dental insurance all types of treatment are subsidized, including prosthetics and orthodontics ¹¹ , the subsidies being fixed according to the type of treatment involved. For certain extensive dental procedures, there is a special high-cost protection system for those aged 65 years or over ²⁵ .
Switzerland	Not covered	Dental treatment is covered by the compulsory health insurance only in the case of very severe and unavoidable diseases. As a result, most dental services are funded privately either by the patient or through supplementary health insurance ²⁶ .

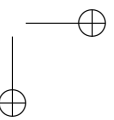
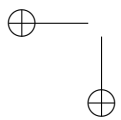
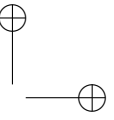
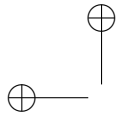
Appendix 2: Slope Index of Inequality (SII) (highest education level compared to lowest) and 95% confidence intervals according to sex and ability to chew by country and type of dental care coverage.

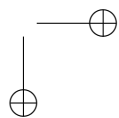
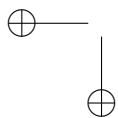
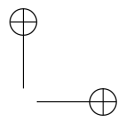
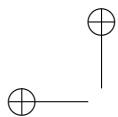
Type of coverage and country	Absolute inequalities			
	Men		Women	
	Can chew SII (95% CI)	Can't chew SII (95% CI)	Can chew SII (95% CI)	Can't chew SII (95% CI)
Partially covered				
Austria	-1.4 (-20.3-17.5)	70.8 (26.6-115.0)	22.5 (8.2-36.9)	62.3 (25.8-98.7)
Belgium	32.2 (20.8-43.5)	42.2 (19.6-64.7)	32.0 (21.2-42.8)	46.8 (26.9-66.8)
Denmark	24.4 (14.8-34.0)	37.9 (11.8-63.9)	29.7 (20.6-38.8)	32.5 (10.4-54.7)
France	26.3 (10.3-42.3)	31.0 (-6.4-68.4)	26.7 (12.8-40.5)	48.8 (22.3-75.2)
Germany	19.9 (7.9-31.9)	47.1 (19.3-74.8)	18.3 (6.1-30.5)	62.0 (31.2-92.9)
Greece	13.7 (2.2-25.2)	12.9 (-14.2-39.9)	10.5 (-1.3-22.4)	20.9 (-5.6-47.4)
Sweden	17.3 (6.8-27.7)	6.2 (-47.0-59.5)	12.6 (3.8-21.5)	40.1 (4.6-75.6)
Total*	17.9 (13.4-22.4)	35.0 (24.8-45.1)	16.3 (12.6-20.1)	34.8 (26.6-43.0)
Not covered				
Italy	30.2 (15.6-44.7)	45.2 (18.2-72.3)	36.5 (23.0-50.0)	23.4 (-6.7-53.5)
Netherlands	32.6 (22.0-43.2)	50.9 (16.8-85.0)	30.5 (20.4-40.6)	51.5 (23.5-79.5)
Spain	34.5 (19.2-49.8)	77.3 (40.3-114.3)	28.4 (14.3-42.5)	30.4 (-7.6-68.4)
Switzerland	23.6 (10.0-37.1)	36.3 (-13.8-86.4)	27.0 (13.3-40.6)	81.0 (35.5-126.5)
Total*	48.2 (38.6-57.7)	67.6 (51.8-83.3)	48.8 (39.8-57.9)	73.6 (59.5-87.8)

*age and country-adjusted



- 4.4 Palència, L., Espelt, A., Rodríguez-Sanz, M., Puigpinós, R., Pons-Vigués, M., Pasarín, M. I., Spadea, T., Kunst, A. E., and Borrell, C. (2010). [Socio-economic inequalities in breast and cervical cancer screening practices in Europe: influence of the type of screening program](#). *Int. J. Epidemiol.*, 39(3):757-65.





Chapter 5

DISCUSSION

The studies included in this thesis suggest that SEP inequalities in health have existed in Catalonia at least for the last 20 years and don't seem to be diminishing. In Catalonia, people from manual classes previously used GP services in a larger proportion than people from non-manual classes even when their greater needs were taken into account, but now use seems to be equally distributed among SEP groups; in Spain people from manual classes continue to use GP services to a greater extent. Use of outpatient specialist services shows that SEP inequalities persist over time and in the two areas. These inequalities are especially marked in dental services; the only service included in our studies which is not covered in the Spanish National Health System. Socioeconomic inequalities in use of dental care services exist throughout Europe, but they are more marked in those countries in which dental care is not covered at all by the public health system than in those countries in which dental care is partially covered. SEP inequalities in breast and cervical cancer screening used to be very marked in Catalonia although they have undergone a decrease, especially in the case of breast cancer screening, where a population-based screening programme has been implemented. In Europe socioeconomic inequalities in breast and cervical cancer screening are not found in countries with population-based

screening programmes but they are found in those countries with only regional programmes and in those countries with opportunistic screening.

5.1 Socioeconomic inequalities in health/need of health services

Though this was not a main objective of the thesis, we looked at inequalities in health and health-related behaviours in one of the papers and in all we used them to adjust for differential need of health services. For this reason we will spend this section trying to discuss briefly our results on socioeconomic inequalities in health.

In the study of trends in Catalonia [Borrell et al., 2011] the results show that SEP inequalities exist in Catalonia with regard to perceived health status, to the presence of chronic conditions and to poor mental health. All these inequalities have been present at least since the beginning of the nineties and in general have remained stable except for the presence of 3 or more chronic conditions (out of a total of 15 conditions common to all surveys) in women, in which case relative inequalities seem to have diminished. Something that could explain this decrease in inequalities would be the increase in the prevalence of chronic conditions which in turn could be caused by an improvement in the detection and diagnosis of disorders in all the population. Regarding health-related behaviours, the pattern of inequalities in smoking seems to have changed over time. While inequalities among men were modest at the beginning of the nineties, important inequalities have subsequently emerged. In women, while those from non-manual classes used to smoke more, this pattern now seems to have reversed. This is because smoking is diminishing in men, particularly among non-manual classes, but it is stable among non-manual women and increasing in manual women. Men and women are in different stages of the smoking epidemic, men being at a more advanced stage than women, and also within each gender

non-manual classes are more advanced than manual classes [Graham, 1996, Giskes et al., 2005, Thun et al., 2012].

In the study on inequalities in dental care [Palència et al., 2012] it was found that SEP inequalities in oral health exist throughout Europe, which had also been documented before [Marmot and Bell, 2011, Petersen et al., 2005]. Such inequalities are mediated by some health-related behaviours such as tobacco, alcohol consumption or diet, but certainly others that partly determine them such as access to healthy food, to dental products and to dental services [Kwan and Petersen, 2010, Sisson, 2007].

The associations between SEP and health have persisted over time despite the changes in disease and risk factors. This is sometimes explained because SEP represents an array of resources, such as money, knowledge, prestige, power and social connections that protect health no matter what the mechanisms are [Phelan et al., 2010]. In addition, socioeconomic inequalities in health are a widespread phenomenon; in countries at all levels of income, health and illness follow a social gradient: the lower the SEP, the worse the health [CSDH, 2008]. These inequities arise because of the differential circumstances in which people grow, live, work, and age; but these conditions are, in turn, shaped by political, social, and economic forces [CSDH, 2008]. In this regard, a set of policies and interventions aimed at reducing social inequalities in health have been proposed at national [Comisión para Reducir las Desigualdades Sociales en Salud en España, 2012] and international levels [CSDH, 2008]. Mainly they deal with improving the conditions of daily life, tackling the inequitable distribution of power, money, and resources and measuring the problem, evaluating action, expanding the knowledge base, developing a trained workforce and raising public awareness with regard to the social determinants of health [CSDH, 2008].

5.2 Socioeconomic inequalities in use of health care services

In this section we will discuss the results found with regard to the presence or absence of SEP inequalities in use of primary care, visits to the specialist, hospitalisations and use of emergency services. We will leave the discussion of the particular cases of dental services and female cancer screening, together with the policies studied, for future sections.

5.2.1 Primary care services

The papers on trends in Catalonia [Borrell et al., 2011] and Spain [Palència et al., 2011] have reinforced the idea that in Europe the use of primary care services is equitable or that SEP disadvantaged individuals use them more [Hanratty et al., 2007, van Doorslaer et al., 2006, van Doorslaer and Masseria, 2004, van Doorslaer et al., 2004]. In Catalonia SEP disadvantaged individuals were more likely to visit the GP at the beginning of the study period but at the end of the period there were no differences in use in men, and in women the differences had diminished [Borrell et al., 2011]. In Spain, people from manual classes used the GP more during the entire period [Palència et al., 2011]. Several explanations could be given for this phenomenon. In the first place it is well known that people of disadvantaged social classes have worse health and thus an increased need for health care, and although we adjusted for several health services need variables, some residual confounding could remain. For example, we adjusted for perceived health status but it seems that socioeconomically advantaged Europeans are more likely to rate a given state negatively [d’Uva et al., 2008], and although in that study the same tendency was not observed for Spain, if true it would result in an underestimation of inequalities. In addition, we adjusted for the presence of chronic conditions but there could be some undiagnosed disorders or they could be more severe or adverse in people from

manual classes. Assuming that the differences in use persist even after taking into account all the differential need, there could still be other valid explanations. In the first place, socioeconomically advantaged individuals are more likely to have private insurance [Borrell et al., 2001] and their higher incomes allow them to visit a specialist directly [Rodríguez and Stoyanova, 2004], while socioeconomically disadvantaged people must first see a public GP, who in Spain acts as a gatekeeper. In addition, socioeconomically advantaged people seem more capable of obtaining adequate informal care [Dahlgren and Whitehead, 2007] so they may solve minor health problems without visiting the doctor. Finally, we have hypothesized that socioeconomically disadvantaged individuals may have not only more need of curative care but also other kinds of personal health care due to their stressful living circumstances.

5.2.2 Outpatient specialist services

In our studies of trends [Borrell et al., 2011, Palència et al., 2011] we observed socioeconomic inequalities in specialist visits which persisted over time, and at both regional and national levels. Inequalities in specialist visits were observed in all countries examined in a multi-country study [van Doorslaer et al., 2006], despite the often very different characteristics of their health care systems, as well as in a review performed in countries with universal health systems [Hanratty et al., 2007]. As stated before, socioeconomically advantaged individuals more often have private insurances which allow them direct access to specialised care. This is coherent with the fact that SEP inequalities seem more consistent in the case of Catalonia, which, together with Madrid and the Balearic Islands, is one of the communities with the highest private insurance purchases. When we adjusted our analyses by type of insurance coverage (only public versus additional private insurance), inequalities diminished considerably but did not completely disappear (figures 5.1 and 5.2). This could be because socioeconomically advantaged people have higher

incomes which allow them to directly visit private specialists and pay for their services. In addition, SEP advantaged individuals seem to have higher expectations and to be more demanding with respect to healthcare [Scott et al., 1996] and may be more assertive about being referred to a specialist [Stirbu et al., 2011] which could lead to a higher number of specialist referrals by their GPs. What is more, SEP advantaged individuals are more able to bypass primary care and reach specialists more often than those disadvantaged [Glazier et al., 2009], due to their better ability to navigate the health system.

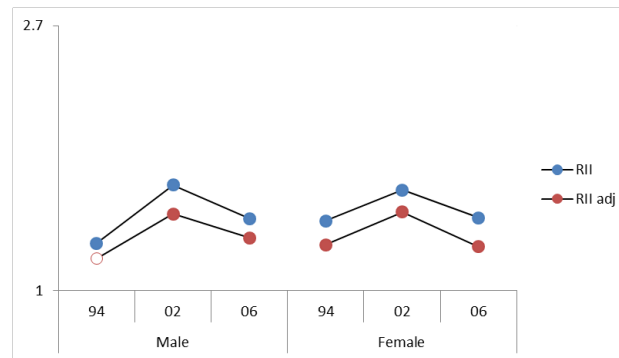


Figure 5.1: Social class inequalities (Relative Index of Inequality adjusted by age and perceived health) with and without adjustment by tenure of additional private health insurance in use of health care services in men and women in Catalonia (filled shapes indicate statistically significantly different from 1). Source: personal compilation based on ESCA 1994-2006 data

As it seems that socioeconomically disadvantaged people are more likely to visit the GP while socioeconomically advantaged individuals are more likely to see a specialist, one could argue that finally all needs are met in some way or another, also given the beneficial impact that primary care has on population health [Starfield et al., 2005b]. However, it has been seen that the increased proportion of specialist visits by socioeconomically advantaged groups is not compensated by

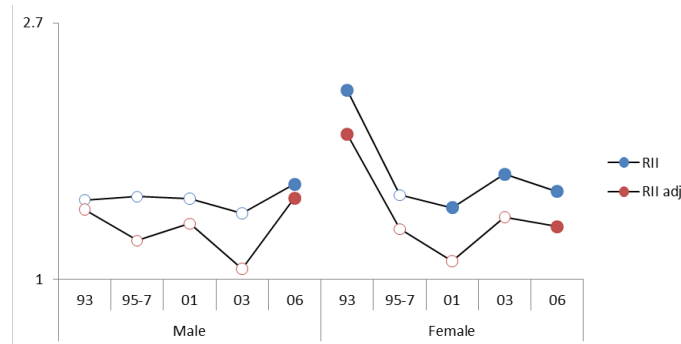


Figure 5.2: Social class inequalities (Relative Index of Inequality adjusted by age, perceived health status and presence of chronic conditions) with and without adjustment by tenure of additional private health insurance in use of health care services in men and women in Spain (filled shapes indicate statistically significantly different from 1). Source: personal compilation based on ENS 1993-2006 data

the increased use of GP doctors by those socioeconomically deprived [Stirbu et al., 2011, van Doorslaer et al., 2004] as inequalities in specialist visits are much larger and more consistent than the differences in GP use. This can also be seen in our studies as in Catalonia in 2006 there was equity in visits to the GP but there were important inequalities in visits to the specialist. And in Spain the excess probability of SEP advantaged individuals visiting a specialist is always lower than the default probability of visiting a GP.

5.2.3 Hospitalisations

Hospitalisations do not present SEP inequalities either in Catalonia [Borrell et al., 2011] or Spain [Palència et al., 2011]. This, in general, agrees with what has been found in other countries where it seems that the probability of hospitalisation may be more sensitive to the real needs of the population and to patterns of referral by profession-

als and thus do not show marked socioeconomic inequalities. Van Doorslaer did not find inequalities in hospital inpatient care in the European OECD countries [van Doorslaer et al., 2004] with some exceptions such as Portugal where there were income inequalities and Switzerland where use was higher among those with lower incomes. Among 10 European countries participating in the Survey of Health, Ageing and Retirement in Europe (SHARE), education level inequalities were only found in France while income inequality was found in Greece and Switzerland [Allin et al., 2006], in this case mainly due to the importance of informal payments in Greece. However, in a study using pooled data from 5 surveys, income inequality in inpatient care was found in 7 out of 12 European Union member countries after standardising by need, which was at least partially explained by inequities in specialist visits and supposedly through their elective admissions [Masseria and Koolman, 2004]. In that study in Spain the frequency of hospitalisation appeared to be higher among those with higher incomes, although the difference was not statistically significant. The authors concluded they had increased statistical power by increasing sample sizes. However, in our studies the results are quite consistent throughout the surveys so we do not think that they would change if we increased statistical power. As their results are expressed in terms of concentration indexes, it is difficult for us to compare effect-sizes in addition to statistical significance. Despite all, and as we have also argued in our papers, on-going changes in surgery practices, such as the increased use of ambulatory surgery services or home hospitalisation, should also be investigated as future sources of SEP inequality.

5.2.4 Emergency services

In our Spanish study [Palència et al., 2011] manual workers used significantly more emergency services than non-manual workers and this pattern was especially marked in men. These results had also been found in other European countries [Shah and Cook, 2008, Blatchford

et al., 1999], although this issue seems to be studied less, in comparison to inequity in primary and specialised care. The same argument of unmeasured need for health care applies here, but we have also hypothesised that SEP disadvantaged people may have diseases more likely to be addressed by emergency services and that are not captured by our indicators of need such as, injuries [Gotsens et al., 2011], acute respiratory diseases [Chiesa et al., 2008], acute myocardial infarction [Davies et al., 2009], and so on. On the other hand, SEP disadvantaged individuals could be using emergency services to avoid waiting times in the public specialist which are long in the case of Spain [Garrido-Cumbrera et al., 2010], while SEP advantaged individuals would be solving this situation by using the private ones. An alternative explanation would be that those socioeconomically disadvantaged have more demanding and precarious jobs which may force them to use health services with flexible visiting hours such as the emergency departments [Cots et al., 2002]. Some of the explanations mentioned would be compatible with the fact that inequalities are more marked among men, since, for example inequalities in injuries are more pronounced in men [Gotsens et al., 2011] and, at least in Spain, men have traditionally been more involved in the labour force and could have more problems to access services only open during regular hours.

5.3 SEP inequalities in use of dental services and influence of the degree of public coverage of dental services

In this thesis we found that socioeconomically advantaged Catalan [Borrell et al., 2011] and Spanish [Palència et al., 2011] people and older socioeconomically advantaged European adults [Palència et al., 2012] were more likely to have seen the dentist and this happened independently of their oral health status. Different studies involv-

ing several countries [van Doorslaer et al., 2004, Hosseinpoor et al., 2012, Listl, 2011] in addition to several individual country studies [Wamala et al., 2006, Pavi et al., 2010, Grignon et al., 2010, Sanders et al., 2006, Somkotra and Detsomboonrat, 2009] found important inequalities in the use of dental care services. Most of the studies agreed that these inequalities arise from the economic barriers that socioeconomically disadvantaged people encounter to access dental care, but few studies had been able to assess it. One of the studies found that providing the poorest people with dental care insurance would substantially reduce (although not eliminate due to the gradient in the association) inequity in dental care utilisation [Grignon et al., 2010]. And in a study measuring inequalities after the introduction of universal coverage in Thailand [Somkotra and Detsomboonrat, 2009] inequalities persisted mainly because of the unevenly distributed resources for providing care (lower in rural and deprived areas), different benefit packages in different insurance schemes and due to the presence of the private sector in dental care.

We were able to ascertain that, in Europe, socioeconomic inequalities were more pronounced in countries where dental care was not covered at all by the public system than in those where it was partially covered [Palència et al., 2012]. However it is worth mentioning that even in those countries inequalities were remarkable. This is mainly because none of the countries had completely covered dental care services and the public financing of the services was usually very limited. Adequate health care coverage provides financial security against the costs of unexpected illness and helps to facilitate access to treatments and preventive services [de Looper and Lafortune, 2009]. In addition, public funding of health care offers the opportunity for improving both efficiency and equity [Leake and Birch, 2008]. In contrast, out-of pocket payments fall more on those who use more health services, usually the more deprived groups due to their increased needs [Hanratty et al., 2007, Corrieri et al., 2010], creating important barriers to access care.

In our study we found that SEP inequalities were higher among

people with reduced ability to chew. We have hypothesized that this could happen because those who have less ability to chew may also have fewer teeth and be less likely to perceive a need for dental services [Exley, 2009]. This fact could be particularly increased among socioeconomically disadvantaged groups [Exley, 2009]. Another possible explanation would be that the group with disadvantaged SEP and poor oral health would have more severe oral diseases and, as current oral health strongly reflects the past use of health services [Grignon et al., 2010], they could be a group especially prone to attend the dentist less on a regular basis. Further study of the relationship between SEP, oral health and dental attendance is needed.

5.4 SEP inequalities in female cancer screening and influence of the type of screening programme

In this thesis we have found that SEP inequalities in breast and cervical cancer screening were very marked in Catalonia at the beginning of the nineties [Borrell et al., 2011], especially in breast cancer screening where socioeconomically advantaged women were as much as 3 times more likely to have undergone a mammogram than disadvantaged ones. However, SEP inequalities in these preventive practises underwent a decrease, this decrease being more pronounced in breast cancer screening where in 2006 there were no significant inequalities. This is likely to be because in Spain population-based breast cancer screening programmes have existed since the 1990s, and some population-based and non-population-based cervical screening programmes were initiated at a regional level [Castells et al., 2007].

In cancer screening, population-based programmes where the target population is personally identified and invited to the screening have been implemented in order to increase the uptake of screening and, in fact, they have been proven to be effective in increasing

screening attendance [Bonfill et al., 2001, Forbes et al., 2002]. In accordance with that, in our European paper on screening practices [Palència et al., 2010] we found that the prevalence of attendance to breast cancer screening was higher in countries where some pilot or regional programmes were implemented than in those where only opportunistic screening existed, and even higher in countries where national population-based programmes were implemented. However, our study did not support a similar assertion for cervical cancer screening; the prevalence of attendance was not higher in countries with national programmes or in countries with regional programmes in comparison with those countries with opportunistic screening. This could be partly because Eastern countries had high cervical cancer screening rates even though they did not have organised screening programmes. Cervical smear tests were previously included in annual medical examinations in many institutions and factories during the Soviet era [Jargin, 2008], and the health-care system emphasized the responsibility of the medical profession for the timely detection and treatment of diseases [Remennick, 2003]. For this reason, both women and physicians could be more conscious of the problem and could request screening more frequently. Compared with mammography, cervical cancer screening is also cheaper and easier to carry out by health professionals during visits. For these reasons, we believe that cervical cancer screening behaviour may be more sensitive to other aspects of health care, such as access or visits to the gynaecologist.

In addition, we did not find SEP inequalities in countries with population-based screening programmes but we found them in countries with only regional programmes and in countries with opportunistic screening [Palència et al., 2010]. Again, the pattern was much clearer in breast cancer screening and it showed a gradient; inequalities were higher in partially covered countries than in completely covered countries and even higher in opportunistic screening. Two studies had analysed the impact of population-based programmes on inequalities and both had found that inequalities persisted after the

implementation of the programmes [Ronco et al., 1997, Puddu et al., 2009]. This could be in part attributable to the fact that socioeconomically advantaged women also took advantage of the programmes and also because only a short time had passed since implementation of the programmes. Population-based programmes are based on personal invitations which promote screening and ensure that nobody is excluded due to individual characteristics [Miles et al., 2004]. In addition, screening examinations that take place in a population-based programme are more likely to be publicly financed than the ones that take place out of the programme [von Karsa et al., 2008], thus presenting less economic barriers.

5.5 Limitations

One of the main difficulties in the study of inequity in the use of curative health care services is adjusting for unequal health care needs among SEP groups. In this thesis, like in most of the studies undertaking this kind of research [Hanratty et al., 2007], we compared the levels of use among socioeconomic groups once their need was taken into account. However, we could not check whether their absolute levels of use matched their real needs. An additional problem was the actual measurement of need of health services. Some authors have argued that a combination of self-rated general health with a measure of disease and a measure of disability provides extensive control of health status when studying socioeconomic differences in health care utilization [van der Meer et al., 1996]. For that reason, we adjusted for self-perceived health status and presence of chronic conditions (the only variables available which were comparable over time). However, and as explained above, it seems that when perceived measures are being used, those socioeconomically advantaged are more demanding with their health and thus more likely to rate a given state negatively [d’Uva et al., 2008]. It is worth mentioning that in that study the same tendency was not observed for Spain,

but if true this would lead to differential health not being properly controlled for, and thus underestimation of health care inequalities.

Another limitation is that in the trends studies, some questions changed slightly over time. For example, in the study in Catalonia, the wording of the question on pressure measurement changed and the removal of the concept of prevention in the question could have prompted a decrease in inequalities. However, such reduction in inequalities, together with the increase in prevalence, is also coherent with the preventive role that GPs were supposed to play after the Spanish reform of primary health care. Another example is found in the Spanish paper, as in 2006 both the format and the recall period of the question on visits to the general practitioner and the specialist changed. This did not seem to have a big effect on the size of inequalities; however it seems that, at least in the case of specialist visits, statistical significance increased (see figure 7). This could have been due to an increase in the statistical power given by a longer recall period and should be considered when more editions of the survey are available to continue the time series.

All the studies were cross-sectional and were thus subject to reverse causality. It is not likely that the use of health services during the last few months could have an effect on the current SEP. However, it is something to take into account regarding the use of health services and health status, especially in the case of dental care where it seems more likely that regular visits will improve oral health. We stratified our analyses by oral health, thus trying to remove its confounding effect, and inequalities were present in both strata. However, the relationship between SEP, dental visits and oral health should be the focus of future longitudinal studies. Also in the paper on dental visits we would have liked to use the multilevel technique to measure the effect of public coverage on the prevalence and inequality in visits to the dentist. However the low number of countries, 11, prevented us from doing so, as recommendations have been made that at least 20 groups are needed in order to detect cross-level interactions.

In the paper on cancer screening it was observed that some of the countries offered the test at an interval which was not one of the frequency options asked in the survey. In three countries the cervical screening programmes offered tests every 5 years although the screening variables had a 3-year frequency. Making the assumption that in these countries SEP disadvantaged women would mainly have the tests through the programme every five years and some SEP advantaged women would have them more often and out of the programme, this would lead to an overestimation of inequalities in countries with organised programmes which would reinforce the observed effect of organised programmes on inequalities. In addition we explored the effect of different intervals and variables such as pelvic examination and the results remained unchanged.

5.6 Implications and recommendations

It seems that in Spain SEP disadvantaged individuals face barriers to accessing outpatient specialist care, which do not seem to be compensated by their increased probability of visiting a GP. Although we all recognise the huge value of GP professionals in terms of equity of access, their prevention and diagnostic power, their early intervention, their focus on the person rather than on the disease and a long list of issues which contribute to the improvement of population’s health [Starfield et al., 2005a, Starfield et al., 2005b]; the specific treatment and diagnosis provided by specialist physicians is likewise important, and a shared care between specialists and generalists has been found to be optimal for treatment of certain conditions [Stange and Ferrer, 2009]. In addition, the barriers found to visit a specialist could lead to an overuse of emergency services with all its consequences in terms of poor healthcare continuity and poor quality of care, which are more likely to affect SEP disadvantaged people as they would be the heavier users.

In this thesis we have not analysed the quality of care received.

Until recently, public services in Spain were of high quality, as evidenced by the fact that most GP visits and hospitalisations occurred in the public system regardless of people’s private insurance status [Regidor et al., 2008]. However, how this will evolve with the budget cuts that the government is performing is still unknown. In addition, we could not assess whether the quality of care received varied according to socioeconomic circumstances as our surveys did not collect the information necessary to do so. Some studies report that SEP disadvantaged individuals may be more likely to get shorter GP consultations and receive less information [Scott et al., 1996]. This problem may be even worse if we think about the existence of public and private care in Spain, as doctors in the public system are usually pushed to follow their schedule and have less time to spend per patient. Waiting lists are a persistent problem in outpatient specialist visits but also in inpatient non-urgent care [Lopez-Casasnovas et al., 2005], and waiting times for hospitalisations are longer for people from disadvantaged social classes regardless of whether the service is publicly or privately financed [Regidor et al., 2006]. Inequalities in the quality of care in other spheres of the Spanish health care system, such as in the treatment or the intervention received should be the subject of future research.

This thesis has demonstrated that the lower the public coverage, the higher the inequalities in use of dental services. There is no reason to think why these results could not be extrapolated to other health care services or systems. All health systems, but the Spanish one in particular, are considering increasing co-payments or introducing them in services where they are not present, though the drawbacks of co-payments in terms of inequalities have been discussed at length. The growth of provision of health services by the private sector, mainly in terms of a growth in insurance purchases, is also a matter of concern as it may lead to a systematic neglect of the public sector [Di et al., 2007] and the quality of a national health system that is mainly directed at poorer individuals might be expected to deteriorate. As some authors have noted: ‘A system for the poor

ends up being a poor system’ [Repullo, 2009, López-Fernández et al., 2012]. In our opinion the solution lies in a high quality universal system, financed through progressive taxes, with sufficient funding and enough benefits for everybody to discourage people from seeking private options [McKee and Stuckler, 2011]. Specifically in dental care, more public funding and control should be present in the systems where this service is completely market-based. It may seem imprudent to make such a recommendation in a moment in which health care budgets are being cut, but it is now that socioeconomically deprived families are suffering from the effects of the financial crisis, that they should be most protected: the argument for investment in health and health systems applies now more than ever [McKee et al., 2012]. The effects of the austerity measures on health and use of health services among those in more need have already been seen in some countries [Kentikelenis and Papanicolas, 2012, Stuckler and McKee, 2012]. And in Spain, due to the late implementation of the welfare state and the indiscriminate economic measures, the effects of the economic crisis are likely to be large [Rajmil and de Sanmamed, 2012].

We would like to finish with an emphatic defence of the Spanish universal health care system and to advise against any attempts to limit its universality. During the last few decades the Spanish health care system has increasingly extended the coverage of its population until universal coverage was finally reached, but this changed with the approval of a decree-law passed on the 20th of April this year by the current conservative government [Real Decreto-Ley 16/2012, 2012]. This decree-law threatens to turn our universal tax funded system into an insurance-based system thus excluding important and vulnerable parts of the population: mainly immigrants without a residence permit, reinforcing the existence of SEP inequalities in health; but also young people who have not worked before, who are the most affected by the current unemployment rates, and non-working women, generating a situation of dependence towards their partners [López-Fernández et al., 2012]. These measures are being implemented with-

out taking into consideration their impact on population’s health and without the participation of the public, health professionals and the scientific community. The crisis is also being used as a justification to introduce changes which favour the private sector in terms of privatisations and an increased role of private insurances [López-Fernández et al., 2012, García-Rada, 2011]. As Naomi Klein put it, in her frequently cited remark: ‘Those opposed to the welfare state never waste a good crisis’ [López-Fernández et al., 2012, McKee and Stuckler, 2011].

Chapter 6

CONCLUSIONS

1. In Catalonia, socioeconomically disadvantaged individuals were more likely to use GP services than socioeconomically advantaged individuals even when their greater needs were taken into account, but in 2006 use seemed to be equally distributed among SEP groups; in Spain socioeconomically disadvantaged groups continued to present higher proportions of GP use.
2. Use of outpatient specialist services shows consistent SEP inequalities over the time both in Catalonia and Spain.
3. Hospitalisations do not present SEP inequalities either in Catalonia or Spain, while socioeconomically disadvantaged groups seem to present higher proportions of emergency services use, especially in men.
4. SEP inequalities are especially marked in dental services both in Catalonia and Spain.
5. Socioeconomic inequalities in use of dental care services exist throughout Europe, but they are more marked in countries in which dental care is not covered at all by the public health system than in countries in which dental care is partially covered.

6. SEP inequalities in breast and cervical cancer screening used to be very marked in Catalonia although they have undergone a decrease, especially in the case of breast cancer screening.
7. In Europe, women are more likely to have undergone breast cancer screening in countries with population-based cancer screening programmes than in those with opportunistic screening.
8. In Europe, socioeconomic inequalities in breast and cervical cancer screening are only found in countries without nationwide population-based screening programmes; this pattern is much clearer in breast cancer screening.

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