

Patient cost sharing and physician visits by socioeconomic position: findings in three Western European countries

Lourdes Lostao, Enrique Regidor, Siegfried Geyer, Pierre Aïach

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The association between educational level and the probability of physician visits in three Western European countries, one of which has a system of patient cost sharing was evaluated. Cross-sectional surveys were performed in France, Germany and Spain around 1990 and around 2000. People representative of the French, German and Spanish populations, aged 25–74 years were studied. The probability of physician visits decreased in the second period with respect to the first in France and Germany, but it increased in Spain. In the two periods studied, subjects with low educational level had a lower probability of physician visits than those with high educational level in France, in contrast with the general trend in Germany and Spain. In both periods, France had patient cost sharing whereas Germany and Spain did not. The existence of patient cost sharing in the healthcare systems of Western European countries raises doubts about the possibility of making use of health services independent of individual socioeconomic position.

of patient cost sharing but Germany and Spain did not.

METHODS

Data sources

France was selected because it is a country with public coverage of healthcare and a system of patient cost sharing. Because the way in which the healthcare system is financed might influence the results, we selected two countries without patient cost sharing as comparators: Germany, where the health system is financed by social insurance, the same as in France, and Spain, where the health system is financed by taxes.

Information was obtained on physician visits by socioeconomic position in the three countries for two periods: around 1990 and around 2000. We used several national health surveys carried out in 1990 and 2000 in France, in 1992 and 1998 in Germany, and in 1987 and 2001 in Spain.

The French data were taken from the 1990 and 2000 Surveys of Health and Social Protection carried out by the Centre de Recherche d'Étude et de Documentation en Économie de la Santé. The sampling framework consisted of homes where at least one member was insured by the social security. All household members were included in the sample. In 2000, the sample was representative of 95% of French households, whereas in 1990 it represented 85%, because people insured through the system of self-employed professionals and through the agricultural system were excluded. The non-response rate was 17% in 1990 and 26% in 2000.

The data for Germany were taken from the 1992 National Health Survey and the 1998 Federal Health Survey carried out by the Robert Koch Institute (Berlin, Germany). The sampling framework consisted of the German non-institutionalised population aged 25–69 years in 1992 and 18–79 years in 1998. The non-response rate was 24% in 1992 and 28% in 1998.

In Spain, we used the 1987 and 2001 National Health Surveys carried out by the Ministry of Health and Consumer Affairs. The sampling framework was made up of the Spanish non-institutionalised population >15 years of age. The non-response rate was 10% in 1987 and 15% in 2001.

Information on the existence of cost sharing for physician visits in France, Germany and Spain in the two periods studied was obtained from publications of the European Observatory on Health Care Systems^{13–15} and from other studies that have reviewed this subject.^{3 16 17}

Since the 1980s, many Western European countries have introduced cost-containment measures in an attempt to restrict growing healthcare expenses.^{1–3} One of these measures is patient cost sharing, which aims to reduce the demand for healthcare. Several studies have confirmed that patient cost sharing reduces the use of a wide range of health services: physician visits, hospital admissions, emergency services, preventive care services and pharmaceutical prescriptions.^{4–9}

In systems with patient cost sharing, people in lower socioeconomic groups should theoretically make less use of health services than those in higher socioeconomic groups, since the former have less income. No previous studies have assessed the effect of patient cost sharing in Western European countries on the frequency of use of health services in different socioeconomic groups. Furthermore, the results of the few studies that have evaluated this effect in other countries have not been conclusive. Some studies have found a greater reduction in the use of medical care in poor people than in those who are more well off,^{4 10} whereas other studies have not found significant socioeconomic differences.^{11 12}

In this study, we compare the association between socioeconomic position and the probability of physician visits in France, Germany and Spain in two periods in which France had a system

See end of article for authors' affiliations

Correspondence to:
Dr L Lostao, Department of
Sociology, Universidad
Pública de Navarra,
Campus de Arrosadía,
31006 Pamplona-Navarra,
Spain; llostao@unavarra.es

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Measurements

In the data sources used, physician visit was defined as any visit to a physician in the last 30 days before the interview in France, in the last 4 weeks before the interview in Germany and in the last 2 weeks before the interview in Spain.

The measure of socioeconomic position used was educational level. Although income is the ideal socioeconomic indicator reflecting the ability to pay for physician visits, we excluded this variable from the analysis due to the high non-response rate. In the surveys conducted around 1990, the non-response rate to the question on income ranged between 10% in Germany and 40% in Spain, whereas in the surveys made around 2000 it ranged between 20% in Spain and 28% in France. In the surveys in France and Spain, information was obtained on the highest level of education completed by the person interviewed, whereas in Germany, information was obtained on the formal degree of educational attainment in years of schooling. Educational level was grouped into three categories: low, medium and high. In France and Spain, low educational level includes subjects with pre-primary or no education and those with primary education; medium educational level includes subjects with lower secondary education; and high educational level includes subjects with upper secondary and tertiary education. In Germany, low, medium and high educational level includes people with up to 9, 10 and >10 years of education, respectively.

Our analysis took into account a measure of the need for healthcare by including self-assessed health status, a measure that was included in all the surveys, except for the 1990 survey in France. The surveys in Germany and Spain offered five response categories: very good, good, fair, poor or very poor, whereas self-assessed global health status in the 2000 survey in France was measured using a 10-point scale. We constructed an indicator variable based on these responses and classified individuals into two categories: those perceiving their health as excellent (good or very good health; 9 or 10 points) and those perceiving it as poor (fair, poor or very poor health; 1–8 points).

Statistical analysis

Because the age range of the sampling framework in the German surveys was more limited than in the French and Spanish surveys, the analysis was restricted to the population aged 25–74 years. The analyses were made separately for two age groups—25–44 and 45–74 years—since the distribution of the population by educational level in these age groups is different, especially in the first period analysed. Moreover, we used educational level as a proxy for income; the average level of education is higher in the younger age group (25–44 years) than in the older age group (45–74 years), whereas the average level of income is higher in the older age group than in the younger group. In each country and period, we calculated the percentage of subjects who consulted a physician by educational level. We then estimated the age- and sex-adjusted association and the age-, sex- and need-adjusted association between educational level and the probability of physician visit. The measure of association was the odds ratio (OR) estimated by logistic regression, and the highest educational level was taken as the reference category.

RESULTS

Table 1 shows the results for the probability of physician visits. In France and Germany, the percentage of subjects who consulted a physician in the different educational level categories was lower around 2000 than around 1990, whereas in Spain this percentage was higher around 2000.

Table 2 shows the estimates for the association between educational level and probability of physician visits. In France, the age- and sex-adjusted OR in subjects with low educational

level in the 25–44-year age group was 0.61 in the first period and 0.65 in the second period. Similar results were seen in the 45–74-year age group. In Germany, no significant differences were seen in the ORs in the 25–44-year age group around 1990, whereas around 2000, the OR in subjects with low educational level was 1.30. In the 45–74-year age group also, the magnitude of the OR in subjects with a low educational level was 1.30 in both periods. In Spain, the OR for subjects aged 25–44 years with a low educational level was 1.26 in the first period and 1.24 in the second period, whereas the corresponding figures for those aged 45–74 years were 1.59 and 1.17. After adjusting for need, the OR in subjects with a low educational level around 2000 in the two age groups was 0.76 and 0.72, respectively, in France; 1.18 and 1.21 in Germany; and 0.93 and 0.95 in Spain. In the second period, the OR adjusted for need was not significant in the 25–44 year group with a low educational level in France, whereas all ORs adjusted for need were not significant in Germany or Spain, except in the case of the 45–74-year group in Spain around 1990.

In both periods analysed, France had a system of patient cost sharing under which patients had to pay 30% of the cost of physician visits, whereas neither Germany nor Spain required a co-payment for this type of service.

DISCUSSION

Principal findings

The probability of physician visits decreased in the second period in France and Germany, but increased in Spain. In both periods, subjects with a low educational level had a lower probability of physician visits than those with a high educational level in France, whereas the opposite was generally true in Germany and Spain. Patients in France were required to share the cost of physician visits in both periods, whereas this was not the case in either Germany or Spain.

Possible explanations

In 1996, a health card was introduced in France with the objective of reducing physician visits and duplicate prescriptions.¹⁷ Patients are required to show the health card at the consultation, and the doctor records the relevant information for follow-up. The introduction of this card might have been responsible for the decreased frequency of physician visits in 2000 with respect to 1990 in France.

In 1997, co-payment for medications was increased in Germany. One study found that physician visits were reduced by 15% as a consequence of this co-payment.¹⁸ The author of the study attributed this result to the close relationship between the demand for physician visits and the demand for drug prescriptions. The reduced probability of physician visits in the second period with respect to the first in Germany might be due to this change in the co-payment for prescription drugs.

The public healthcare system was financed by social insurance in both periods in France and Germany, and in the first period in Spain. In 1989, Spain began a process of transition to a system financed by taxes, and by 1999, all health financing was based on general taxation.¹⁴ Parallel to this process, public healthcare coverage was extended to many population groups that did not have social insurance. This change from a Social Security system to a National Health Service model could explain the increased probability of physician visits in the second period in Spain. The increase in the probability of physician visits occurred in smaller proportion in subjects with low educational level than in those with high educational level; thus, the magnitude of the association between educational level and physician visits was lower in the second period. Specifically, in the 25–44-year age group, the probability of physician visits in 2000 with respect to 1990 increased by 48% in the low educational level group versus 51%

Table 1 Percentage of physician visits by educational level in France, Germany and Spain, around 1990 and around 2000

Country and educational level	Age 25–44 years		Age 45–74 years	
	Around 1990	Around 2000	Around 1990*	Around 2000
France				
High	1022 (33.5)	2947 (25.6)	484 (43.0)	1931 (34.9)
Medium	1355 (28.0)	3004 (21.0)	790 (38.0)	1950 (29.1)
Low	487 (24.4)	249 (19.3)	1278 (37.4)	1929 (29.3)
Germany				
High	904 (39.3)	750 (30.0)	407 (47.7)	538 (42.6)
Medium	1363 (44.2)	1156 (34.2)	608 (56.4)	812 (48.5)
Low	1319 (38.3)	711 (35.7)	2652 (57.4)	1818 (54.6)
Spain				
High	2680 (11.6)	3660 (17.5)	930 (15.4)	1440 (25.1)
Medium	1754 (14.7)	3216 (18.5)	527 (22.0)	1424 (27.9)
Low	5337 (14.7)	992 (21.8)	10034 (24.5)	5374 (33.1)

*Age 45–69 years in Germany.
Values shown denote sample size (%).

in those with high educational level, whereas the increase in the 45–74-year age group was 35% and 63%, respectively.

There is ample evidence showing an inverse gradient between the frequency of health problems and socioeconomic position in these three countries.^{19–21} The fact that persons with a low educational level have more health problems than those with a high educational level probably explains the greater frequency of physician visits among this group in Spain and Germany. In fact, when we adjusted for the need for care, the pro-poor inequality disappeared, as has been observed in other studies that have used income instead of education.^{22–23} The observation of the opposite situation in France can be

attributed to the co-payment required for physician visits in France, although the lack of significance of the OR in the 25–44-year group with a low educational level in the second period does not provide definitive evidence. Some studies,^{3–10–11} but not all,¹² suggest that the introduction of patient cost sharing reduces physician visits, and that this reduction is greater in persons with lower income. The fact that the findings in France were so different from those in Germany and Spain supports the evidence that patient cost sharing has a greater effect on people belonging to the lowest socioeconomic groups.

We ruled out the possibility that the results were due to the way we defined the variable representing need for care in the

Table 2 Relationship between probability of physician visits and educational level in France, Germany and Spain, around 1990 and around 2000

Country and educational level	Around 1990		Around 2000	
	Model 1* OR (95% CI)	Model 2† OR (95% CI)	Model 1* OR (95% CI)	Model 2† OR (95% CI)
25–44 years				
France				
High	1.00	NA	1.00	1.00
Medium	0.81 (0.68 to 0.97)	NA	0.82 (0.72 to 0.93)	0.78 (0.68 to 0.90)
Low	0.61 (0.48 to 0.79)	NA	0.65 (0.46 to 0.90)	0.76 (0.52 to 1.09)
Germany				
High	1.00	1.00	1.00	1.00
Medium	1.13 (0.95 to 1.34)	1.15 (0.93 to 1.43)	1.17 (0.96 to 1.43)	1.09 (0.89 to 1.33)
Low	0.90 (0.75 to 1.34)	0.95 (0.78 to 1.16)	1.30 (1.04 to 1.63)	1.18 (0.94 to 1.48)
Spain				
High	1.00	1.00	1.00	1.00
Medium	1.30 (1.09 to 1.56)	1.29 (1.07 to 1.55)	1.04 (0.92 to 1.18)	0.96 (0.86 to 1.06)
Low	1.26 (1.09 to 1.45)	1.10 (0.94 to 1.27)	1.24 (1.04 to 1.63)	0.93 (0.83 to 1.03)
45–74 years‡				
France				
High	1.00	NA	1.00	1.00
Medium	0.84 (0.62 to 0.99)	NA	0.73 (0.63 to 0.84)	0.81 (0.70 to 0.94)
Low	0.72 (0.58 to 0.90)	NA	0.60 (0.52 to 0.70)	0.72 (0.62 to 0.85)
Germany				
High	1.00	1.00	1.00	1.00
Medium	1.36 (1.05 to 1.76)	1.46 (0.96 to 2.23)	1.21 (0.96 to 1.51)	1.16 (0.92 to 1.45)
Low	1.30 (1.05 to 1.61)	1.04 (0.74 to 1.45)	1.30 (1.07 to 1.60)	1.21 (0.98 to 1.48)
Spain				
High	1.00	1.00	1.00	1.00
Medium	1.57 (1.20 to 2.07)	1.53 (1.15 to 2.03)	1.08 (0.92 to 1.28)	0.98 (0.82 to 1.16)
Low	1.59 (1.32 to 1.91)	1.30 (1.07 to 1.58)	1.17 (1.02 to 1.34)	0.95 (0.80 to 1.07)

NA, not available.
*Model 1: OR adjusted for sex and age.
†Model 1: OR adjusted for sex, age and self-assessed health status.
‡Around 1990: 45–69 years in Germany.

analysis, by evaluating the sensitivity of the results to different cut-off points of self-assessed health. The results changed very little when this variable was grouped into three categories instead of two. In 2000, the OR in subjects with low educational level in France, Germany and Spain was 0.68 (0.46 to 0.99), 1.13 (0.88 to 1.38) and 0.92 (0.81 to 1.05), respectively, in the 25–44-year age group, and 0.65 (0.54 to 0.77), 1.17 (0.93 to 1.48) and 0.93 (0.82 to 1.10), respectively, in the 45–74-year age group.

An alternative explanation could be the existence of supplemental health coverage. Many people have private health insurance in addition to public coverage, and the frequency of private coverage may vary depending on education. However, adjusting for supplemental health coverage had little effect on the magnitude of the association in the two countries for which this information was available—France and Spain (data not shown). A similar situation was observed in a study carried out in France using data from 1998, in which subjects with low educational level also had a lower probability of any physician visit after adjusting for age, sex, self-assessed health and supplemental private health coverage.²⁴

Study limitations

Although income is probably the best indicator of a person's ability to pay, in this study we used educational level as the indicator due to the high non-response rate to income. We excluded subjects who responded to questions on income due to heterogeneity in answers by country. Whereas Spanish people with low educational level showed a higher response rate to questions on income than those with high educational level, in French people the case was the opposite. In any case, there is wide consensus that education is the dimension of socioeconomic position that shapes the likelihood of being unemployed, the kind of job a person can get and income.^{25–26} Nevertheless, education may also be related to physician visits by way of mechanisms that are not necessarily related to income. The knowledge and skills attained through education give individuals the ability to communicate with and access appropriate health services.²⁷

We studied any visit to a physician without distinguishing between general practitioner and specialist visits. Some studies in France have found inequality in favour of the rich in the probability of visits to both types of physician, whereas studies in Germany and Spain have observed pro-poor inequality in the probability of contacting a general practitioner and pro-rich inequality in the probability of contacting a specialist.^{22–28} A similar phenomenon may occur in the case of educational level; thus, the existence of patient cost sharing could affect the relationship between educational level and the probability of a visit to a general practitioner, but not the probability of a visit to a specialist.

In the estimates for the first period in France, neither self-employed professionals nor agricultural workers were included

What is already known

- A number of studies have shown that the introduction of patient cost sharing in the healthcare system reduces the use of a wide range of health services.
- No previous studies have assessed how patient cost sharing in Western European countries affects the frequency of use of health services in different socioeconomic groups.
- The few studies that have evaluated this effect in other countries have yielded inconclusive results.

What this paper adds

- Around 1990 and around 2000, people with low educational level made fewer physician visits than those with high educational level in France, contrary to the trend in Germany and Spain.
- France had a system of patient cost sharing in both periods, whereas Germany and Spain did not.

Policy implications

- The existence of patient cost sharing in the healthcare systems of Western European countries raises doubts about whether it is possible to make the use of health services independent of individual socioeconomic position.

because they were outside the sampling framework. Thus, a possible selection bias in these estimates cannot be ruled out, although it is not possible to predict the direction of such a bias because self-employed professionals have a high educational level, whereas most agricultural workers have a low educational level. The association between educational level and physician visits in both periods was similar, which suggests that this possible bias had little impact on the results.

We considered the need for healthcare in the evaluation of the association between educational level and physician visit. It is possible to evaluate clinical need related to access to and use of specific health services—for example, diagnostic and therapeutic procedures in cardiology.²⁹ However, there is no agreement about the definition of need in the study of access to and use of general health services, such as physician visits.³⁰ In this regard, self-assessed health status may represent an overadjustment, since this measure may reflect other social needs and not only the need for healthcare. In any case, it is unlikely that this possible overadjustment would affect the conclusions that can be drawn from the comparison of the results in the three countries.

Implications

If public financing of healthcare in Western European countries is based on social solidarity, which aims to ensure that use of health services is independent of an individual's socioeconomic position, the results of this study raise important doubts about whether this objective is being achieved when measures such as patient cost sharing are introduced in the healthcare system.

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Authors' affiliations

Lourdes Lastao, Department of Sociology, Sociology of Health, Universidad Pública de Navarra, Pamplona, Spain

Enrique Regidor, Department of Preventive Medicine and Public Health, Universidad Complutense de Madrid, Madrid, Spain

Siegfried Geyer, Medical Sociology Unit, Hannover Medical School, Hannover, Germany

Pierre Aïach, CRES (Centre de Recherche sur les Enjeux Contemporains en Santé Publique), Faculté de Médecine, Université Paris Nord, Bobigny, France

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