

Original Article

Determinants of Seeking Needed Outpatient Care in Iran: Results from a National Health Services Utilization Survey

Ahmad Reza Hosseinpour MD PhD^{*}, Mohsen Naghavi MD PhD^{**},
Seyed Moayed Alavian MD^{**},^{***}, Niko Speybroeck PhD[†],
Hamidreza Jamshidi Pharm D^{****}, Jeanette Vega MD DrPH^{*}

Background/Objective: To assess the inequity in seeking needed outpatient services in Iran and to investigate its influential factors.

Methods: The data were taken from a nation-wide Iranian health survey conducted in 2003. This study is based on individuals aged 15 years and over who had mentioned their need to seek outpatient care within two weeks prior to the day of the interview. The outcome was seeking needed outpatient care. The independent variables included respondents' age, gender, marital status, education, occupation, index of household economic status, health insurance status and residential place (urban vs. rural).

Results: Sixty-nine point five percent of those in need sought outpatient care. The rich (OR: 2.38, 95% CI: 1.64 – 3.43) and the health insured (OR: 1.62, 95% CI: 1.25 – 2.08), the pensioners and the retired (OR: 2.26, 95% CI: 1.22 – 4.20), the housewives (OR: 1.77, 95% CI: 1.07 – 2.95) were more likely to seek outpatient care than other occupations. On the other hand, people living in remote rural areas (OR: 0.40, 95% CI: 0.28 – 0.57) were less likely to seek their needed outpatient care than those living in main rural areas and urban areas.

Conclusion: As in different parts of the world, differences in seeking needed healthcare still exist across different groups in Iran. Indeed, seeking outpatient care in Iran is related not only to health system functions—like health insurance and health facilities—but also on factors beyond the scope of health authorities such as economic status and occupation. This study can be instrumental for the recent five-year Economic, Social and Cultural Development Plan of Iran which identified the reduction of inequalities in social determinants of health.

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Introduction

Many factors potentially influence the differential access to healthcare facilities across different groups.¹ They can be categorized into three broad groups: “predisposing factors” including age, gender, education, and ethnicity, “enabling factors,” and “factors related to the need for health care.”^{2, 3} Enabling factors exist at both individual levels, e.g., health insurance coverage, regular source of care, economic status and at community level, e.g., availability of healthcare delivery system and the distance to and conditions of care providers. According to a frequently-used definition, health systems are said to be equitable if use of health

Authors' affiliations: ^{*}Department of Equity, Poverty and Social Determinants of Health, Evidence and Information for Policy, World Health Organization, Geneva, Switzerland, ^{**}Ministry of Health and Medical Education, Tehran, Iran, ^{***}Department of Gastroenterology, Baqiyatallah University of Medical Sciences, Tehran, Iran, [†]Department of Animal Health, Institute for Tropical Medicine, Antwerpen, Belgium. ^{****}Director of National Board for Medical Education, Department of Pharmacology School of medicine, Shaheed Beheshti University of Medical Sciences and Health Services, Tehran, Iran.

Corresponding author and reprints: Ahmad Reza Hosseinpour MD PhD, Department of Equity, Poverty and Social Determinants of Health, Information, Evidence and Research, World Health Organization, 20 Ave., Appia, Geneva 27, CH1211, Switzerland. Tel: +41-22-791-3205, Fax: +41-22-791-4292, E-mail: hosseinpoura@who.int. Accepted for publication: 24 August 2007

services is based on people's needs for services,⁴ irrespective of individual or social differences.

The constitution of the Islamic Republic of Iran guarantees all citizens, particularly people in poor and rural areas, the right to access healthcare facilities.^{5, 6} This resulted in the health network development, guaranteeing primary healthcare (PHC) for 100% of urban population and about 85% of the rural population.⁷ However, it is believed that, despite intended universal provision, inequities still exist in healthcare utilization. Furthermore, there has been limited information on how demographic, socioeconomic, health needs and other factors affect health service utilization in the country.

The health sector reform which is proceeding in Iran is currently supposed to provide more equitable access to health services for different groups of people.⁶ This study, to the best of our knowledge, is the first systematic assessment of equity in utilization of outpatient services in Iran aimed at investigation the influential factors of seeking needed outpatient care in Iran.

The Iranian health system

While the Ministry of Health and Medical Education finances and delivers the PHC, the secondary and tertiary cares are increasingly financed through the compulsory public sector and private insurance schemes. The Ministry of Health and Medical Education is, nonetheless, responsible for regulating both the private and public sector healthcare delivery.⁸

An elaborate network of facilities for delivering the PHC at district levels is completely decentralized. General health and medical polices are made at national level but the District Health Networks are free to implement these programs as deemed on other desertion suitable. The Network Management Unit plans and manages healthcare services in the urban and rural areas of the district.⁷

Health houses provide PHC in rural areas. Every health house covers one or more villages. Each health house is staffed by two trained health workers. Patients, who require a higher level of medical attention than primary care, are referred to the local Rural Health Center where can, in turn, refer them to the District Hospital. Specialized care is provided by university-affiliated hospitals in provincial capitals. In urban areas, there are urban health centers⁹ and health posts—equivalent to respectively rural health centers, and rural health houses. Health posts provide PHC mainly in slum

areas.⁹ The District Health Center is the headquarters of health promotion activities.

Iran has a well-developed private health sector, primarily concentrated in urban areas and playing a major role in the provision of secondary and tertiary cares. It also controls almost the whole pharmaceutical industry and drug distribution and accounts for a large share of laboratory facilities.⁸

There are four major health insurance organizations namely a) Medical Service Insurance Organization covering government employees, rural households, and students; b) Social Security Organization covering formal sector employees, self-employed and their dependents; c) Armed Forces Medical Services Organization covering military members and their dependents and d) the Emam Khomeini Relief Committee covering the poor and destitute people.⁸

Materials and Methods

Sample and procedures

This study was based on the Utilization of Health Services in IR Iran, a national health survey conducted in 2003. Systematic sampling method was used to choose the 3,514 households using the sampling frames of Iranian households available at Health Network Development Center.⁶

Data on all members of sampled households—about 17,000 individuals—were gathered using a previously precoded and pretested questionnaire.⁶ Sampled households were visited at a maximum of five times during the survey. By the end of the survey, 3,339 out of 3,514 households were interviewed, yielding a 95% response rate.⁶ The survey sample was representative for the last population census.⁶ As data for individuals under 15 years old were obtained from the parents, they were not interviewed, and thus this group was excluded from the study. This study uses data on 2,720 individuals aged 15 years and older who had mentioned their need to seek outpatient care within two weeks prior to the interview.

Variables

The outcome was defined as seeking outpatient care—a binary variable—within two weeks prior to the interview. Independent variables included the respondents' demography like age, gender, marital status, education, occupation, index of household economic status, health insurance status and residential place (urban vs. rural).

Index of economic status for each household

was constructed using principal components analysis.¹⁰ The variables used in the analysis included number of rooms per capita, having a separate kitchen, having a bathroom, type of cooking device, and type of heating device, having a car, having a motorcycle, having a fridge, having a TV, having a mobile phone, having a microwave oven and having a washing machine. The first principal component, which is assumed, be a proxy for household wealth, explained near 20% of the total variance. Economic status quintiles were used as a categorical independent variable in the model.

Statistical analysis

The association between seeking outpatient care and its potential influential factors was assessed using “robust logistic regression analysis” taking into account the clustering effect at the household level. In the bivariate analysis, odds ratios of seeking outpatient care were calculated for each independent variable. In the multivariate analysis, adjusted odds ratio was derived through regression of seeking outpatient care on independent variables. Goodness of fit was checked using Hosmer-Lemeshow and linktest.¹¹ All statistical analyzes were performed using Stata version 9.0.¹²

Results

Sixty-nine and a half percent (1,891 out of 2,720) of adults in need sought outpatient care. Ninety-eight percent of the group seeking outpatient care also managed to find it. Table 1 shows the summary statistics of independent variables among those who sought outpatient care. It also summarizes the bivariate associations between explanatory variables and seeking outpatient care.

The females, the married, the more educated, the retired, those with low-economic status, pensioners, economically troubled persons, individuals with health insurance, and those living in urban areas were more likely to seek outpatient services. Age had no significant effect.

Table 1 illustrates the results of the multivariate logistic model as well. Hosmer-Lemeshow and linktest were non-significant (P values=0.99 and 0.94, respectively) indicating the appropriate “goodness of fit” of the model. Occupation, household economic status, health insurance and residential place were significantly associated with seeking outpatient services controlling for the explanatory variables mentioned in Table 1. These associations are illustrated in Figure 1.

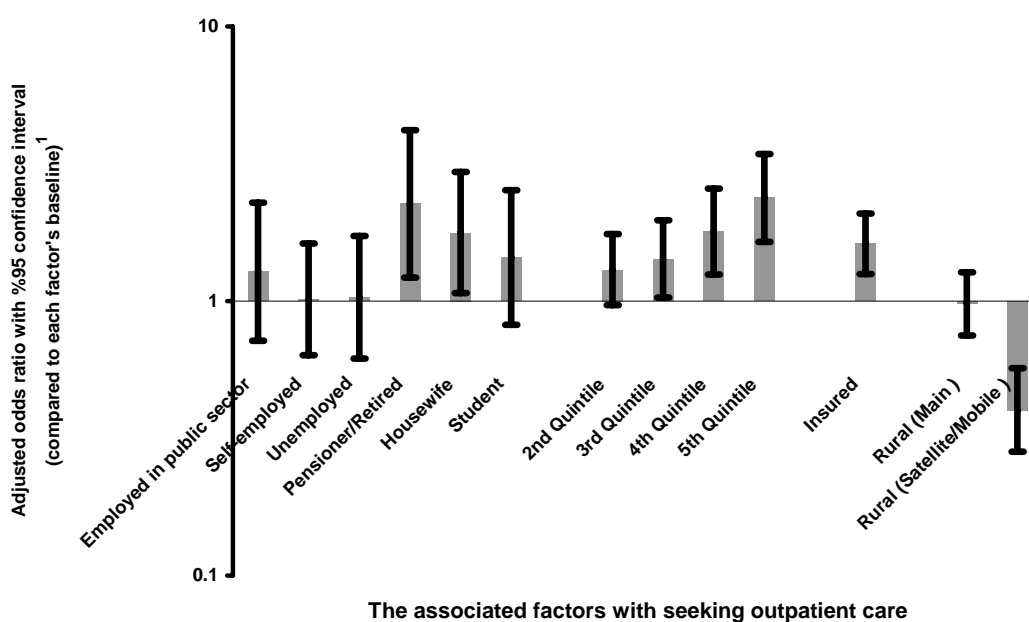


Figure 1. The factors associated with seeking outpatient care controlling for each other and individual's age, sex, marital status and educational level, Iran, 2003.

Table 1. Summary statistics, crude and adjusted association between seeking outpatient care and explanatory variables, Iran, 2003.

		% Seeking care (n _{sought} /n _{in need})	Crude odds ratio and 95% confidence interval			Adjusted odds ratio and 95% confidence interval		
			Odds ratio	Lower limit	Upper limit	Odds ratio	Lower limit	Upper limit
Age	15 – 30	69.09 (684/990)	1			1		
	30 – 44	70.51 (562/797)	1.07	0.87	1.32	1.00	0.77	1.30
	45 – 59	66.6 (335/503)	0.89	0.71	1.12	0.85	0.61	1.17
	≥60	72.09 (310/430)	1.16	0.89	1.50	1.15	0.76	1.74
Sex	Female	71.73 (1223/1705)	1			1		
	Male	65.81 (668/1015)	0.76**	0.65	0.89	1.05	0.77	1.45
Marital status	Married	70.59 (1390/1969)	1			1		
	Divorced/Widow	67.12 (147/219)	0.85	0.63	1.14	0.81	0.57	1.16
	Never married	66.54 (354/532)	0.83	0.67	1.02	0.94	0.68	1.29
Education	Illiterate	65.22 (572/877)	1			1		
	Primary school	70.99 (526/741)	1.30**	1.05	1.62	1.27	0.97	1.67
	high school	71.37 (683/957)	1.33 [†]	1.09	1.63	1.19	0.86	1.64
	University	75.86 (110/145)	1.68**	1.12	2.52	1.14	0.67	1.95
Occupation	Employed in private sector	62.86 (66/105)	1			1		
	Employed in public sector	74.85 (122/163)	1.76*	1.03	3.01	1.28	0.72	2.28
	Self-employed	60.96 (267/438)	0.92	0.60	1.43	1.01	0.64	1.62
	Unemployed	60.19 (127/211)	0.89	0.55	1.45	1.03	0.62	1.73
	Pensioner/Retired	81.45 (101/124)	2.59 [†]	1.42	4.73	2.26 [†]	1.22	4.20
	Housewife	72.53 (985/1358)	1.56*	1.04	2.35	1.77**	1.07	2.95
	Student	71.88 (161/224)	1.51	0.91	2.49	1.44	0.82	2.53
Household economic index	1 st Quintile	59.13 (353/597)	1			1		
	2 nd Quintile	66.78 (408/611)	1.39**	1.05	1.84	1.30	0.97	1.75
	3 rd Quintile	70.47 (401/569)	1.65*	1.23	2.21	1.42**	1.03	1.97
	4 th Quintile	74.66 (333/446)	2.04*	1.49	2.79	1.79 [†]	1.25	2.57
	5 th Quintile	80.97 (366/452)	2.94*	2.16	4.01	2.38*	1.64	3.43
Health insurance status	Not insured	63.13 (363/575)	1			1		
	Insured	71.24 (1528/2145)	1.45 [†]	1.15	1.82	1.62*	1.25	2.08
Location	Urban	73.33 (1166/1590)	1			1		
	Rural (Main)	68.85 (599/870)	0.80	0.65	1.00	0.98	0.75	1.27
	Rural (Satellite/Mobile)	48.46 (126/260)	0.34*	0.25	0.46	0.40*	0.28	0.57

* $P < 0.001$, [†] $P < 0.01$, ** $P < 0.05$ compared with the baseline group

Discussion

According to a commonly-used definition, health systems are equitable if the people's use of services is primarily based on their needs,^{4, 12} irrespective of individual or social differences.

To the best of our knowledge, this is the first study investigating seeking outpatient services in Iran using a recent national health survey. Utilization of outpatient care in Iran is made up of the probability to seek care which is 69.5% and the probability to find care which is 98% when seeking for it. Because of the latter high probability, seeking care can therefore be used as a proxy for healthcare utilization. We found evidence of inequities: in particular, the rich and the health insured, the pensioners and retirees, and the housewives were more likely to seek outpatient

care than other occupations. On the other hand, people living in remote rural areas were less likely to seek their needed outpatient care than main rural areas and urban areas.

These findings are consistent with other studies reporting significant associations between seeking outpatient services and health insurance,^{2, 13 – 16} living in rural areas,^{2, 17, 18} having flexible daily schedules¹⁶ and economic status^{13, 15} and non-significant associations of seeking outpatient care with age,¹⁵ gender¹⁶ and education.^{16, 19} Previous studies in the US, Brazil and Iceland found that individuals with limited or no insurance make fewer visits to physicians.^{2, 13 – 16} From a health sector reform point of view, achieving universal health insurance coverage will not only increase the health services utilization, but also lead to reduced household catastrophic health expen-

ditures.²⁰ Of specific interest is the effect of insurance after controlling for the socio-economic status, indicating that being insured affects the average level of seeking care, irrespective of the socio-economic status. We also found no difference in seeking outpatient care between urban areas and main rural areas, after adjusting for other factors indicating the impact of the health network in the rural areas. This indicates health network has done an excellent job in the rural areas where at least health houses—the first level of health care delivery network—exists. On the other hand, the people in need who are living in satellite and mobile rural areas, where there is no health house, have the least probability of seeking outpatient care. These rural areas are covered by health houses which are in main villages. People in satellite and mobile rural areas mention (more than ones in urban and main rural areas) that distance to health houses in the main villages is one of the reasons for failing to seek care.⁶ So an expansion of rural health care facilities would answer a direct health need.²¹ Lack of roads with good quality and poor public transit leading to an inconvenient and costly seeking health services might be as other impeding factors at community. Other studies showed the influence of distance to care provider on health care utilization for rural residents.¹⁷ Some studies also indicated that distance might be a surrogate for location in a richer web of relations between residents and their local communities.¹⁸ Kirby and Kadena found that living in disadvantaged areas is associated with reducing the likelihood of obtaining recommended preventive services and increasing the likelihood of having unmet medical need, even after controlling for individual-level characteristics.³ They suggested that when those who are disadvantaged are concentrated into specific areas, disadvantage becomes an “emergent characteristic” of those areas that predicts the ability of residents to obtain healthcare. This is supported by a study in the US showing that communities matter, even after adjusting for individual need and enabling characteristics. Access to medical care was better for those living in communities with more federally-funded health facilities.²

Our study indicated that seeking outpatient care is also related to factors beyond the scope of health system. Table 1 shows an ascending trend in seeking outpatient services in those with higher economic status, as also reported by others.^{13, 15} Policy initiatives to improve this trend include the

reduction of unemployment, the development of poor rural areas and poorest provinces, identifying and tackling demographic and socioeconomic characteristics of especially poor and vulnerable groups and designing taxation and pricing policies to help redistribute income from rich to poor.²¹ “Poverty Reduction and Targeted Subsidies Plan” and “Social Safety Net National Program” ratified by Council of Ministers in 2005 are two examples of the Government's plans to reach the poor.

This study showed that the employed people in public and private sectors and the self-employed people were less likely to seek outpatient care than the pensioners, the retirees and the housewives who have flexible daily schedules and who do not have to get away from work. This is consistent with a study from Iceland showing that the difficulty of getting away from work results in a delay/cancel of the doctor visit.¹⁶ More flexible opening hours at the community health facilities might improve this situation.

The nonsignificant pure association of individuals' education observed in our study suggests that it is of limited importance for explaining seeking outpatient care which is in keeping with the literature,^{16, 19} although it may be more important when understanding seeking the specific types of outpatient services, like specialist and preventive services as well as explaining variations in seeking inpatient services. For instance, one study in Canada showed that the less educated Canadians visit specialists at a lower rate than those with higher levels of education, after adjusting for differences in health need.¹⁹ Another study in Netherlands found that individuals with a high educational level had a higher probability of outpatient contacts with a specialist, but a lower probability of general practitioner contacts, compared with those with a low educational level controlling for their health status, age, gender and marital status.²²

After adjusting for other variables, our study did not find any significant associations between seeking outpatient care and individuals' demographic characteristics like gender, age and marital status which is in agreement with observations in Iceland.¹⁶ There was a higher level of health services utilization in women without adjusting for other variables. This may be explained by housewives seeking more care and controlling for occupation therefore makes gender nonsignificant. Other studies indicated that female gender is positively correlated with physician utilization but

none of these studies adjusted for occupation.^{2, 15, 23–25} Some studies showed no correlation between visiting a doctor and age controlling for other factors,^{2, 15, 16} but others found that younger individuals were less likely visit a doctor although they needed.^{2, 16} Few studies have assessed marital status differences in access to healthcare facilities. For example, the Iceland study found that the non-widowed were more likely than others to postpone or to cancel their physician visits.¹⁶

It should be noticed that the design of our study might lead to recall bias and causality problems. The recall bias was probably minor as the outcome was measured in a dichotomous way and for a two week period only. Furthermore, a concordance between self-reported and registered utilization of health care has been reported.²⁶ Secondly, in a cross-sectional survey, no cause and effect relationship can be established and the inference about the associations mentioned should therefore be considered with care. However, evidence from longitudinal studies supports the direction of causality suggested in this paper.²⁷

Having a regular source of care or doctor, which might be associated with having better access to health services,^{2, 16, 19, 28} was not included in this survey. Previous studies found that it is directly associated with socioeconomic factors.²⁸ The poor people are more likely to lack a regular doctor because of financial barriers.²⁹ The promotion of having a regular source of care may therefore improve health care quality and health services access, particularly in the poorest groups. This idea has been developed under the health sector reform in Iran as the development of a family medicine system. The current study focused just on seeking outpatient care and did not appreciate the difference in types of outpatient services like visiting a doctor or just providing an over-the-counter drug from a pharmacy. It would be of interest and policy relevance to distinguish the specific kinds of health care, e.g., primary vs. specialist care, in future research.

Our study implies despite great successes in achieving universal provision and access to the health system, there are still some degrees of inequities; the poorest and non-insured group as well as residents in satellite/mobile rural areas still use the health services to a lesser extent. The Iranian government has made a priority of reducing poverty and increasing employment. Furthermore, Iran has boosted their health insurance policy. In addition, those people living in

remote rural areas will benefit from the newly-installed health insurance program covering the whole rural areas. A universal approach linking the Ministry of Health and Medical Education with other ministries, may speed up reducing inequalities in social and health system determinants of seeking healthcare and therefore further improve healthcare utilization.

References

- 1 Oliver A, Mossialos E. Equity of access to health care: outlining the foundations for action. *J Epidemiol Community Health*. 2004; **58**: 655 – 658.
- 2 Andersen RM, Yu H, Wyn R, Davidson PL, Brown ER, Teleki S. Access to medical care for low-income persons: how do communities make a difference? *Med Care Res Rev*. 2002; **59**: 384 – 411.
- 3 Kirby JB, Kaneda T. Neighborhood socioeconomic disadvantage and access to health care. *J Health Soc Behav*. 2005; **46**: 15 – 31.
- 4 van Doorslaer E, Koolman X, Puffer F. *Equity in the Use of Physician Visits in OECD Countries: has Equal Treatment for Equal Need Been Achieved? Measuring Up: Improving Health Systems Performance in OECD Countries*. Paris, France: OECD; 2002: 225 – 248. Available from: <http://www1.oecd.org/publications/e-ook/B102011E.pdf>. Accessed 24 September 2002.
- 5 The Constitution of the Islamic Republic of Iran. Article 29. Tehran: Department of Translation and Publication, Islamic Cultural and Relations Organization, Islamic Republic of Iran; 1997.
- 6 Ministry of Health and Medical Education. Report of Utilization of Health Services Survey. Tehran; 2005.
- 7 Plan and Budget Organization of the Islamic Republic of Iran and United Nations. Human Development Report of the Islamic Republic of Iran. Plan and Budget Organization of the Islamic Republic of Iran and United Nations in the Islamic Republic of Iran. Tehran; 1999.
- 8 World Health Organization-Country Office in I.R. Iran. Country Cooperation Strategy for World Health Organization and Islamic Republic of Iran. Tehran; 2004.
- 9 Sadi-Lari M, Sayyari AA, Akbari ME, Gray D. Public health improvement in Iran—lessons from the last 20 years. *Public Health*. 2004; **118**: 395 – 402.
- 10 Filmer D, Pritchett LH. Estimating wealth effects without expenditure data-or tears: an application to educational enrollments in states of India. *Demography*. 2001; **38**: 115 – 132.
- 11 Stata Corporation. *Stata Base Reference Manual*. Vol.2. College Station. Texas: Stata Corporation; 2003.
- 12 Stata Corporation. *Stata statistical software*. [9.0]. College Station. Texas: Stata Corporation. 2005.
- 13 Berk ML, Schur CL, Cantor JC. Ability to obtain health care: recent estimates from the Robert Wood Johnson Foundation National Access to Care Survey. *Health Aff*. 1995; **14**: 139 – 146.
- 14 Newhouse JP, Manning WG, Morris CN, Orr LL, Duan N, Keeler EB, et al. Some interim results from a controlled trial of cost sharing in health insurance. *N Engl J Med*. 1981; **305**: 1501 – 1507.

- 15 Mendoza-Sassi R, Beria JU, Barros AJ. Outpatient health service utilization and associated factors: a population-based study. *Rev Saude Publica*. 2003; **37**: 372 – 378.
- 16 Vilhjalmsson R. Failure to seek needed medical care: Results from a national health survey of Icelanders. *Soc Sci Med*. 2005; **61**: 1320 – 1230.
- 17 Fiedler JL. A review of the literature on access and utilization of medical care with special emphasis on rural primary care. *Soc Sci Med*. 1981; **15**: 142.
- 18 Nemet GF, Bailey AJ. Distance and health care utilization among the rural elderly. *Soc Sci Med*. 2000; **50**: 1197 – 1208.
- 19 Dunlop S, Coyte PC, McIsaac W. Socioeconomic status and the utilisation of physicians' services: results from the Canadian National Population Health Survey. *Soc Sci Med*. 2000; **51**: 123 – 133.
- 20 Management and planning Organization. *Law of the Forth Economic, Social and Cultural Development Plan of the Islamic Republic of Iran, 2005 – 2009*. Tehran: Management and planning Organization; 2005.
- 21 United Nations. *Common Country Assessment for the Islamic Republic of Iran*. Tehran: United Nations; 2003.
- 22 Bongers IMB, van Der Meer JBW, van Den Bos J, Mackenbach JP. Socioeconomic differences in general practitioner and outpatient specialist care in the Netherlands: a matter of health insurance? *Soc Sci Med*. 1997; **44**: 1161 – 1168.
- 23 Benzeval M, Judge K. Access to health care in England: continuing inequalities in the distribution of GPs. *J Public Health Med*. 1996; **18**: 33 – 40.
- 24 Hulka BS, Wheat John R. Patterns of utilization. The patient perspective. *Med Care*. 1985; **23**: 438 – 460.
- 25 Marcus AC, Siegel JM. Sex differences in the use of physician services: a preliminary test of the fixed role hypothesis. *J Health Soc Behav*. 1982; **23**: 186 – 197.
- 26 Reijneveld SA, Stronks K. The validity of self-reported use of health care across socioeconomic strata: a comparison of survey and registration data. *Int J Epidemiol*. 2001; **30**: 1407 – 1414.
- 27 Mainous AG, III, Gill JM. The importance of continuity of care in the likelihood of future hospitalization: is site of care equivalent to a primary clinician? *Am J Public Health*. 1998; **88**: 1539 – 1541.
- 28 Mendoza-Sassi R, Beria JU. Prevalence of having a regular doctor, associated factors, and the effect on health services utilization: a population-based study in Southern Brazil. *Cad Saude Publica*. 2003; **19**: 1257 – 1266.
- 29 Hayward RA, Bernard AM, Freeman HE, Corey CR. Regular source of ambulatory care and access to health services. *Am J Public Health*. 1991; **81**: 434 – 438.