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Use of primary care services by elderly people with chronic conditions, Brazil

ABSTRACT

OBJECTIVE: To assess the use of healthcare services by elderly individuals suffering from chronic diseases.

METHODS: Cross-sectional study carried out with 2,889 individuals aged 65 years or more with chronic conditions – arterial hypertension, diabetes mellitus and mental illness –, living in catchment areas of primary care units in 41 cities of the South and Northeast regions of Brazil in 2005. The analyzed data were obtained in the baseline study of *Programa de Expansão e Consolidação da Saúde da Família* (Program for the Expansion and Consolidation of Family Health). The studied variables were sex, age, skin color, marital status, level of schooling, family income, smoking, functional disability, and care model of the primary care unit. The adjusted analysis of outcomes was performed by means of Poisson regression.

RESULTS: The prevalence of medical visit in the last six months was 45% in the South region and 46% in the Northeast region. The prevalence of participation in groups of educational activities in the last year was 16% in the South and 22% in the Northeast. In both regions, use of services was higher for elderly people under the age of 80 years, with low level of schooling and living in catchment areas of primary care units with *Programa Saúde da Família* (Family Health Program). Only in the South region did the elderly with functional disability have higher prevalence of medical visits.

CONCLUSIONS: The prevalence of medical visit and participation in groups of educational activities was low when compared to previous studies conducted with elderly individuals in Brazil. The results indicate that, although the Family Health Program promotes greater use of services at primary care units by elderly people with chronic conditions, it is necessary to expand the access of those aged over 80 and of individuals with functional disability.

DESCRIPTORS: Aged. Health Services for the Aged. Primary Health Care. Health Services Accessibility. Health Services Needs and Demand. Cross-Sectional Studies.

INTRODUCTION

The proportion of elderly individuals in the population has been growing quickly in recent decades, which implies an increase in the demand for the health systems. In developing countries, the impact is bigger due to the great amount of individuals in conditions of low level of schooling and poverty, who are more exposed to risk factors for chronic diseases like smoking, obesity and sedentariness.^a In this sense, in 2004 the World Health Organization (WHO)

^a Social development and ageing: crisis or opportunity? In: Panel of the Geneva 2000 Forum: the next step in social development; 2000 June 26-30; Geneva. Geneva: World Health Organization, 2000.

launched a project aiming to attract the attention of and qualify the primary care professionals concerning the elderly individuals' specific needs, highlighting the importance of sheltering the elderly and of their participation in the decisions regarding their own health.¹⁷

The *Sistema Único de Saúde* (SUS – Brazil's National Health System), created by the 1988 Constitution, guarantees to the Brazilian citizen the egalitarian access to the health services. Since 1994, SUS has adopted the *Programa Saúde da Família* (PSF – Family Health Program) as a strategy to reorganize primary healthcare, aiming to promote better assistance and prevention of diseases in the community.^a However, the context of the Brazilian municipalities is very diversified, which makes this process become highly heterogeneous in the national scale.³ Despite the creation of the National Policy for the Elderly's Health in 1999 and of the Elderly Statute in 2003, only in 2006, by means of the Health Pact, did SUS begin to consider the elderly population's health as a priority.^b In primary healthcare, the main objective is now the maintenance of the elderly's functional capacity, ensuring priority assistance for those identified as fragile.

The assessment of the elderly's health in two inquiries carried out in Brazil in 1998 and 2003 showed that, although the poorer individuals present worse health conditions, they are the ones who least use the health services.¹⁰

Considering that primary healthcare is responsible for the direct provision of the majority of health actions and programs, the aim of the present study was to evaluate the utilization of healthcare services by elderly individuals who suffer from chronic diseases.

METHODS

This was a cross-sectional study of data from individuals aged 65 years or older, obtained from the baseline study of *Projeto de Expansão e Consolidação da Saúde da Família* (PROESF - Project for the Expansion and Consolidation of Family Health), carried out in 41 municipalities with more than 100 thousand inhabitants in the period from March to August 2005. Of these municipalities, 21 were located in the South region and 20 in the Northeast region.

Sample selection was performed in multiple stages. Initially, we calculated the size of the sample that was necessary to examine differences in the effectiveness of the programs' actions, according to the care model - PSF and traditional model -, in the catchment areas of *unidades básicas de saúde* (UBS - primary healthcare units), totaling 2,100 individuals in each geographic

region, or an overall figure of 4,200 individuals. To increase the representativeness of the population sample and of the UBS sample (and to reduce the conglomerate effect), the population sample was located in approximately 10% to 20% of the primary care network installed in each municipality, reaching the figure of 120 UBS in each region, a total of 240 UBS. Then, the UBS were randomly selected, based on lists made by the municipal health departments, stratified according to the care model, proportionately to the size of the municipal primary care network. Two UBS with PSF model were selected to one UBS with the traditional model. After dividing the sample of elderly people by the total of UBS, we established that the sample that would be interviewed in the catchment area of each UBS would be composed of 18 individuals. The individuals were located by means of consecutive visits to the households in the catchment area of the selected UBS. Only one person from the household was interviewed. The complete methodology of PROESF is described in another publication.⁶

In the study, 4,003 individuals were identified and interviewed, and 2,889 of them suffered from one, two or three chronic health conditions – systemic arterial hypertension, diabetes mellitus and mental illness –, 1,386 in the South region and 1,503 in the Northeast region. Considering the South region as reference because it presented the smallest sample, the margin of error for estimating the prevalence of medical visit in the last six months was 1.8% and for participation in groups of educational activities in the last year was 2.4%. To evaluate associations, the study had an 80% power to detect, as significant, prevalence ratios of 1.5 or higher, for exposures that affect from 10% to 90% of the population with a 95% level of confidence.

The interviews were conducted at the subjects' home by 15 previously trained interviewers, using a structured and pre-codified questionnaire. In case the elderly individual was not able to answer the questionnaire, another individual residing in the household could help him if the incapacity was partial, or would answer all the questions regarding the selected elderly person, if the incapacity was total.

The dependent variables were two indicators of use of primary healthcare services. To each interviewed individual who informed suffering from one of the three chronic conditions mentioned above, the interviewer asked: "Since <six months ago> how many times have you attended a medical visit due to <chronic condition> at the <healthcare unit that serves the area where you live>?" and "Since <a year ago> have you participated in any group of <chronic condition> at the <healthcare unit that serves the area where you live>?"

^a Programa Saúde da Família. *Rev Saude Publica*. 2000;34(3):316-9

^b Ministério da Saúde. Pacto pela Saúde 2006. *Diário Oficial União*. 23 fev 2006;Seção 1:46-51.

We considered as medical visits at the UBS the answers of one or more visits due to these chronic conditions, and the individual who had attended a medical visit due to two or more diseases in the last six months was not added more than once. Individuals with inconsistencies between having attended a medical visit and not reporting any chronic disease were excluded. We considered as participation in educational groups in the previous year the positive answer of an individual suffering from one or more chronic conditions, and the individual who had participated in two or three groups in the last year was not added more than once. The two outcomes were dichotomous: use of medical visits in the last six months (yes/no) and participation in groups of chronic conditions in the last year (yes/no) at the UBS.

The independent variables were demographic, socioeconomic, health habits, functional disability and UBS care model indicators. The geographic region (categorized as South and Northeast) was a demographic variable referring to the context of the sample individuals. The individual demographic variables were sex, skin color (observed by the interviewer and classified as white, mixed ethnicity and black), marital status (classified as married, with partner, widow/widower, separated, divorced and single) and age (in years). The socioeconomic variables were level of schooling (complete years of study) and family income (in Reais). The health habit indicator was smoking (classified as smoker – individual who smoked more than one cigarette per day during more than one month -, ex-smoker and never smoked). Functional disability was classified as none, little, medium, much difficulty and need of someone else's help to accomplish three or more out of 12 activities, namely: having a shower, eating, getting dressed, going to the toilet, walking, moving from bed to chair, washing the face, pushing a large object, carrying five kilograms, crouching down, raising the arms over the head and dealing with small objects. The care model of the UBS was a variable related to the health system and was classified as PSF and traditional.

The data were keyboarded using the program Epi Info 6.04 and data analysis was performed in the program Stata 9.0. Quality control was performed by telephone through the application of a reduced questionnaire, reaching approximately 6% of the study's sample. The concordance analysis was obtained by the kappa index.

The analyses were stratified by geographic region. The comparison between the South and Northeast regions concerning the utilization of UBS services was made by Pearson's chi-square test. The multivariate analysis of medical visits and of participation in groups at UBS serving the subjects' dwelling areas by elderly individuals suffering from chronic conditions was

carried out by means of Poisson regression with robust variance, taking into account the conglomerate effect. Wald tests of heterogeneity of proportions and of linear tendency for ordinal variables were used, with description of prevalence ratios and respective intervals with 95% confidence.

The adjusted analysis of the two outcomes followed a conceptual model with four determination levels. In the first level, the demographic and socioeconomic variables were considered. In the second level, smoking. In the third level, functional disability. In the fourth level, the primary healthcare model of the UBS, traditional or PSF. To control the confounding factors, the effect of each variable was controlled for other variables in the same and higher levels with value $p \leq 0.2$ in the association with the outcome.

The study was approved by the Ethics and Research Committee of Universidade Federal de Pelotas. The interviewees received explanations regarding the voluntary character of participation in the study, secrecy and confidentiality of individual information.

RESULTS

Table 1 presents the characteristics of the 2,889 interviewed elderly individuals according to the studied regions. The elderly of the female sex, white skin color, widows/widowers and separated/divorced/single, aged up to 74 years, with up to four years of schooling, with family income up to R\$ 600.00, with no functional disability and living in catchment areas of UBS with PSF model represented the major part of the sample in both regions. Some characteristics of the sample were different between regions. In the South region, the majority of the elderly had some level of schooling while in the Northeast region the majority had never attended school. In the Northeast region, there was a larger concentration in the three ranges of lower family income. In the South region, half of the elderly had never smoked while in the Northeast the majority was composed by the groups of ex-smokers and current smokers.

Table 2 compares the prevalence of use of the services of the UBS that serve the subjects' dwelling areas by elderly individuals with chronic conditions. The prevalence of at least one medical visit in the last six months in the South region was 44.8% (CI 95%: 42.1;47.5) with a design effect of 1.757 and 45.6% (CI 95%: 43.0;48.1) in the Northeast region with a design effect of 2.246. The prevalence of participation in at least one group of educational activities in the last year was 16.3% (CI 95%: 14.3;18.2) in the South region with a design effect of 2.076 and 21.7% (CI 95%: 19.6;23.8) in the Northeast region with a design effect of 3.017.

Table 1. Description of the sample of elderly individuals with chronic diseases living in catchment areas of primary healthcare units. Southern and Northeastern Brazil, 2005. (N= 2,889)

Variable	South Region		Northeast Region	
	n	%	n	%
Sex				
Male	467	33.7	548	36.5
Female	919	66.3	955	63.5
Skin color				
White	1143	82.8	867	57.8
Mixed-ethnicity	117	8.4	388	25.9
Black	121	8.8	245	16.3
Marital status				
Married/with partner	577	41.9	622	41.7
Widow/widower	650	47.3	685	45.9
Separated/divorced/single	149	10.8	186	12.4
Age (years)				
65 to 69	469	33.8	466	31.0
70 to 74	384	27.7	387	25.8
75 to 79	281	20.3	334	22.2
80 or older	252	18.2	316	21.0
Schooling (years)				
0	560	40.9	915	62.1
1 to 4	520	38.0	351	23.8
5 to 8	243	17.8	157	10.7
9 or more	45	3.3	51	3.4
Family income (reais)				
0-250	376	27.2	170	11.3
251-450	135	9.7	515	34.3
451-600	326	23.5	362	24.1
601-915	279	20.1	244	16.2
916-4800	270	19.5	212	14.1
Smoking				
Never smoked	685	50.2	605	40.3
Ex-smoker	510	36.8	713	47.5
Smoker	93	13.0	184	12.2
Functional disability ^a				
No	939	70.4	979	66.7
Yes	395	29.6	488	33.3
Care model of the UBS				
Traditional	544	39.2	414	27.5
PSF	842	60.8	1089	72.5
Total	1386	100	1503	100

UBS: Primary healthcare unit

PSF: Family Health Program

^a This variable presented the maximum number of unknown values (88): 52 in the South region and 36 in the Northeast region.

Table 3 presents adjusted analyses of medical visits at the UBS that serve the subjects' dwelling area in the two studied regions. In the South region, there was a reduction in the use of medical visits at the UBS after the age of 80 years and with increase in the level of schooling.

The elderly with functional disability attended 30% more medical visits than those with no functional limitations, and the elderly residing in catchment areas of UBS with PSF model attended approximately 20% more medical visits than those residing in catchment areas

Table 2. Prevalence of medical visit and participation in groups of educational activities at primary healthcare units by elderly individuals with chronic diseases. Southern and Northeastern Brazil, 2005.

Variable	Total		South		Northeast		p ^b
	n ^a	%	n	%	n	%	
Medical visit in the last 6 months	2811	100	1332	100	1479	100	0.689
No	1540	54.8	735	55.2	805	54.4	
Yes	1271	45.2	597	44.8	674	45.6	
Participation in groups in the last year	2876	100	1332	100	1524	100	< 0.001
No	2325	80.8	1132	83.7	1193	78.3	
Yes	551	19.2	220	16.3	331	21.7	

^a The variable medical visit at UBS that serves the subject's dwelling area had 78 unknown values, 46 in the South region and 32 in the Northeast region; the variable participation in groups at UBS that serves the subject's dwelling area had 13 unknown values, 8 in the South region and 5 in the Northeast region.

^b p value of the chi-square test for heterogeneity of proportions.

of UBS with the traditional model. In the Northeast region, the use of medical visits in the UBS that serve the subjects' dwelling area decreased after the age of 80 years and with the increase in the level of schooling

of the elderly. The elderly residing in catchment areas of UBS with PSF model attended approximately 60% more medical visits than those residing in catchment areas of UBS with the traditional model.

Table 3. Adjusted analysis of factors associated with medical visit at the primary healthcare unit in the last six months among elderly individuals with chronic conditions. Southern and Northeastern Brazil, 2005.

Level	Variable	South (n=1332)		Northeast (n=1479)	
		PR (95% CI)	p	PR (95% CI)	p
1	Age (years)		0.004 ^a		0.002 ^a
	65 to 69	1		1	
	70 to 74	0.89 (0.76;1.03)		0.91 (0.79;1.05)	
	75 to 79	0.89 (0.76;1.04)		0.99 (0.86;1.14)	
	80 or older	0.72 (0.58;0.89)		0.71 (0.59;0.85)	
	Schooling (years)		0.003 ^a		<0.001 ^a
	0	1		1	
	1 to 4	0.83 (0.71;0.96)		0.88 (0.76;1.03)	
	5 to 8	0.81 (0.67;0.98)		0.84 (0.70;0.99)	
	9 or more	0.64 (0.41;0.98)		0.40 (0.22;0.72)	
	Family income in quintiles (reais)		0.156 ^a		
	0-250	1		-	
	251-450	0.88 (0.71;1.10)		-	
	451-600	1.08 (0.92;1.26)		-	
	601-915	0.97 (0.82;1.14)		-	
	916-4800	0.82 (0.66;1.01)		-	
3	Functional disability		<0.001 ^b		-
	No	1		-	
	Yes	1.31 (1.15;1.49)			
4	Care model of the UBS		0.045 ^b		<0.001 ^b
	Traditional	1		1	
	PSF	1.19 (1.00;1.42)		1.61 (1.33;1.96)	

PSF: Family Health Program

Note: Level 2 was not presented in the table because the variable smoking did not remain in the final model;

^a Wald Test for linear tendency;

^b Wald Test for heterogeneity;

PR: Prevalence ratio adjusted for variables in the same level and higher that presented p value up to 0.20 in the association with the outcome.

Table 4 presents adjusted analyses of the participation in groups of educational activities in the UBS that serve the subjects' dwelling area in the two studied regions. In the South region, the participation in groups of educational activities decreased as the elderly's age and family income increased. The elderly who smoked participated less in groups of educational activities than the ex-smokers. The elderly residing in catchment areas of UBS with PSF model participated 2.5 times more in groups of educational activities than those residing in catchment areas of UBS with the traditional model. In the Northeast region, the women participated approximately 30% more in groups of educational activities. The participation in groups decreased as the elderly's age and level of schooling increased. The elderly with

functional disability participated approximately 30% less in groups of educational activities than those with no functional disability. The elderly residing in catchment areas of UBS with PSF model participated 2.5 times more in educational activities than those residing in catchment areas of UBS with the traditional model.

DISCUSSION

The use of health services is the result of an interaction process between factors related to the individual, to the health system and to the context in which it occurs.² The present study observed these three factors by analyzing individual variables together with the variable referring to the care model of the UBS stratified by geographic

Table 4. Adjusted analysis of factors associated with participation in groups of educational activities at primary healthcare units in the last year among elderly individuals with chronic conditions. Southern and Northeastern Brazil, 2005.

Level	Variable	South		Northeast	
		PR (95% CI)	p	PR (95% CI)	p
1	Sex	-			0.037 ^a
	Male	-		1	
	Female			1.27 (1.01;1.58)	
	Age (years)		0.006 ^b		<0.001 ^b
	65 to 69	1		1	
	70 to 74	0.89 (0.67;1.20)		0.89 (0.70;1.14)	
	75 to 79	0.81 (0.61;1.12)		0.86 (0.67;1.11)	
	80 or older	0.58 (0.39;0.87)		0.43 (0.31;0.61)	
	Schooling (years)				<0.001 ^b
	0	-		1	
	1 to 4	-		0.76 (0.60;0.97)	
	5 to 8	-		0.63 (0.42;0.95)	
	9 or more	-		0.27 (0.10;0.71)	
	Family income (reais)		0.007 ^b		
0-250	1		-		
251-450	1.04 (0.71;1.53)		-		
451-600	1.00 (0.73;1.37)		-		
601-915	0.82 (0.62;1.09)		-		
916-4800	0.61 (0.40;0.93)		-		
2	Smoking		0.03 ^a		0.077 ^a
	Never smoked	1		1	
	Ex-smoker	1.04 (0.81;1.35)		1.09 (0.89;1.33)	
	Smoker	0.56 (0.34;0.92)		0.69 (0.47;1.02)	
3	Functional disability	-			0.001 ^a
	No	-		1	
	Yes			0.67 (0.53;0.84)	
4	Care model of the UBS		<0.001 ^a		<0.001 ^a
	Traditional	1		1	
	PSF	2.46 (1.58;3.82)		2.53 (1.55;4.13)	

^a Wald Test for heterogeneity

^b Wald Test for linear tendency

region. The assessment of elderly individuals with chronic health conditions aimed to reduce the use of services disconnected from the need of healthcare.

Making a comparison with data referring to elderly individuals obtained from the demographic census of 2000, it is possible to observe categories associated with greater use of health services: women, individuals older than 75 years and individuals with low level of schooling.¹³ Smoking was more frequent among elderly people in the Northeast region, a result that was also observed in a domiciliary inquiry that was carried out in 2002 and 2003 in 15 Brazilian capitals and in the Federal District.^a In this same inquiry, an association was identified between lower level of schooling and smoking, which justifies the presence of a larger proportion of smokers in the sample of the Northeast region. The PSF model was more frequent in the Northeast region than in the South one, which is in agreement with the Ministry of Health's policy on implementing the PSF strategy first in the UBSs of that region, due to the greater shortage of health services and worse indexes of population morbidity and mortality.^b

As for medical visits, in the *Pesquisa Nacional por Amostra de Domicílios* (PNAD - National Survey through Households Sample) of 1998 and 2003, the researchers identified 72% and 78%, respectively, of prevalence of attendance to at least one medical visit in the last 12 months by individuals aged 60 years or older.¹¹ A population-based study carried out in the city of São Paulo identified 83% of this same outcome in individuals aged 60 years or older in the last 12 months.¹² As the sample of the present study included elderly individuals aged 65 years or older who referred suffering from chronic diseases, it was expected that approximately half of them had attended at least one medical visit in the UBS that serves their dwelling area, even if we consider that the recall period that was used corresponded to half of those studies. The prevalence of medical visit was similar in both regions, which is in agreement with the evaluation of the data from the 2003 PNAD, which observed that the utilization of the SUS services was similar across geographic regions, after adjusting for income and level of schooling.¹⁴

The reduction in medical visits in the UBS that serve the subjects' dwelling area according to the increase in the elderly's age, mainly for those aged 80 years and more, in both regions, was also observed in a study that evaluated the general use of health services by the elderly.¹² Considering that the prevalence of chronic diseases increases with the increase in age,¹ it is probable that these individuals present difficulties regarding the accessibility to the UBS.

The reduction in medical visits in the UBS that serve the subjects' dwelling area in both regions according to the increase in the level of schooling suggests that, as observed in other studies, the individuals with higher level of schooling search for other health assistance places.^{5,14}

The higher prevalence of medical visits in elderly individuals with functional disability only in the South region suggests that in the Northeast region the elderly have less access to the UBS. Considering that this condition is an indicator of healthcare need,^{7,13} this result indicates the importance of creating strategies that ensure these individuals' access to medical assistance in primary care.

The higher prevalence of medical visits in the UBS that serve the subjects' dwelling area among elderly people residing in areas of UBS with PSF strategy in the South and Northeast regions indicates that this care model promotes higher access of the elderly. A study that compared the use of services of UBS with PSF model and with the traditional model in São Paulo showed that PSF has promoted a more equitable use of the primary health services.⁸

The evaluation of preventive activities targeted at the elderly in primary care is scarce in the literature. The prevalence of participation in at least one group of educational activities for individuals with chronic conditions, although low in both geographic regions, was worse in the South. This difference is justified by the lower proportion of UBS with PSF model in the South, since these activities are more offered at the UBS that have this model of care.^b

A review study showed that variables related to health conditions play a less important role in the determination of use of preventive services compared to use of health assistance services.⁴ The greater participation of elderly individuals in groups of educational activities in the Northeast region may be related to the worse socioeconomic condition of the elderly in that region, which makes them become more dependent on the services provided by the UBS, like the medication provision of the programs of arterial hypertension and diabetes, guaranteed to users who participate in the activities of groups of people suffering from these diseases. The greater participation of elderly women in groups of educational activities, observed in the Northeast, is justified by the higher value the elderly women attribute to these activities.⁷

The lower participation in groups of educational activities according to the elderly's increase in age in both regions may be attributed to the higher prevalence of

^a Ministério da Saúde, Instituto Nacional do Câncer, Coordenação de Prevenção e Vigilância. Prevalência de tabagismo no Brasil. Rio de Janeiro; 2004.

^b Programa Saúde da Família. *Rev Saude Publica*. 2000;34(3):316-9.

chronic diseases among the oldest individuals,¹ which hampers the access to the UBS.

The lower participation of elderly individuals with higher family income in groups of educational activities in the South region is justified by the preference for using private health services.⁵

The greater participation of the elderly who are ex-smokers in groups of educational activities is due to the higher prevalence of chronic diseases in these individuals.¹⁵

The lower participation in groups of educational activities of elderly people with functional disability in the Northeast region indicates that these individuals have less access to the UBS that serve their dwelling area than those who do not have functional limitations.¹⁶ The greater participation in groups of educational activities of elderly individuals residing in catchment areas of UBS with PSF model in the South and Northeast regions shows that PSF promotes greater access to the UBS of elderly individuals with chronic health conditions when compared to the traditional model.⁸

Among the limitations of the present study, the cross-sectional design may have caused reverse causality bias. However, the use of the recall form aimed to minimize the potential effect of this bias. The resolution degree of

the services provided by the UBS that serve the subjects' dwelling area was not evaluated, although it is important for the continuous use of the health services.

On the other hand, the low percentage of losses in relation to the sample estimated for elderly people reinforces the study's internal validity. The sample can be considered representative of the elderly who suffer from one or more of three chronic conditions – arterial hypertension, diabetes mellitus and mental illness – who reside in catchment areas of UBS of municipalities with more than 100,000 inhabitants in the South and Northeast regions of Brazil.

In conclusion, the results of the present study showed that primary care assisted more the elderly with lower level of schooling and family income, contributing to the promotion of higher equity in health. However, the proportion of at least one medical visit in the last six months was lower than expected when compared to the prevalence in population data. The greater utilization of UBS with PSF model indicates that this primary care strategy, independently of the geographic context, promotes higher access of the elderly who suffer from chronic conditions than the traditional model. The elderly aged over 80 years, as well as those who have functional disability, must benefit from strategies that ensure the access to the UBS.

REFERENCES

1. Almeida MF, Barata RB, Montero CV, Silva ZP. Prevalência de doenças crônicas auto-referidas e utilização de serviços de saúde, PNAD/1998, Brasil. *Cienc Saude Coletiva*. 2002;7(4):743-56. DOI: 10.1590/S1413-81232002000400011
2. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav*. 1995;36(1):1-10. DOI: 10.2307/2137284
3. Bodstein R. Atenção básica na agenda da saúde. *Cienc Saude Coletiva*. 2002;7(3):401-12. DOI: 10.1590/S1413-81232002000300002
4. Borràs JM. Utilization of health services. *Gac Sanit* 1994;8(40):30-49.
5. Bós AMG, Bós AJG. Determinantes na escolha entre atendimento de saúde privada e pública por idosos. *Rev Saude Publica*. 2004;38(1):113-20.
6. Facchini LA, Piccini RX, Tomasi E, Thume E, Teixeira VA, Silveira DS, et al. Avaliação da efetividade da Atenção Básica à Saúde no Sul e Nordeste do Brasil: contribuições metodológicas. *Cad Saude Publica*. 2008;24(Supl 1):S159-72. DOI: 10.1590/S0102-311X2008001300020
7. Fernández-Mayoralas G, Rodríguez V, Rojo F. Health services accessibility among Spanish elderly. *Soc Sci Med*. 2000;50(1):17-26. DOI: 10.1016/S0277-9536(99)00247-6
8. Goldbaum M, Gianini RJ, Novaes HMD, César CLG. Utilização de serviços de saúde em áreas cobertas pelo programa de saúde da família (Qualis) no Município de São Paulo. *Rev Saude Publica*. 2005;39(1):90-9. DOI: 10.1590/S0034-89102005000100012
9. Lima-Costa MF, Barreto SM, Giatti L. Condições de saúde, capacidade funcional, uso de serviços de saúde e gastos com medicamentos da população idosa brasileira: um estudo descritivo baseado na Pesquisa Nacional por Amostra de Domicílios. *Cad Saude Publica*. 2003;19(3):735-43. DOI: 10.1590/S0102-311X2003000300006
10. Lima-Costa MF, Matos DV, Camarano AA. Evolução das desigualdades sociais em saúde entre idosos e adultos brasileiros: um estudo baseado na Pesquisa Nacional por Amostra de Domicílios (PNAD 1998, 2003). *Cienc Saude Coletiva*. 2006;11(4):941-50. DOI: 10.1590/S1413-81232006000400016
11. Lima-Costa MF, Loyola Filho AI, Matos DL. Tendências nas condições de saúde e uso de serviços entre idosos brasileiros: um estudo baseado na Pesquisa Nacional por Amostra de Domicílios (1998, 2003). *Cad Saude Publica*. 2007;23(10):2467-78. DOI: 10.1590/S0102-311X2007001000021
12. Louvison MC, Lebrão ML, Duarte YA, Santos JL, Malik AM, Almeida ES. Desigualdades no uso e acesso aos serviços de saúde entre idosos do município de São Paulo. *Rev Saude Publica*. 2008;42(4):733-40. DOI: 10.1590/S0034-89102008000400021
13. Mendoza-Sassi R, Beria JU. Utilización de los servicios de salud: una revisión sistemática sobre los factores relacionados. *Cad Saude Publica*. 2001;17(4):819-32. DOI: 10.1590/S0102-311X2001000400016
14. Ribeiro MCSA, Barata RB, Almeida MF, Silva ZP. Perfil sociodemográfico e padrão de utilização de serviços de saúde por usuários e não-usuários do SUS - PNAD 2003. *Cienc Saude Coletiva*. 2006;11(4):1011-22. DOI: 10.1590/S1413-81232006000400022
15. Peixoto SV, Firmo JO, Lima-Costa MF. Factors associated to smoking habit among older adults (The Bambui Health and Aging Study). *Rev Saude Publica*. 2005;39(5):746-53. DOI: 10.1590/S0034-89102005000500008
16. Taylor DH Jr., Hoenig H. Access to health care services for the disabled elderly. *Health Serv Res*. 2006;41(3 Pt 1):743-58. DOI: 10.1111/j.1475-6773.2006.00509.x
17. World Health Organization. Towards age-friendly primary health care. Geneva; 2004. (Active Ageing series)