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Colombian health care system: results on equity for five health dimensions, 2003–2008

Fernando Ruiz Gómez,[1] *Teana Zapata Jaramillo,*[2] *and Liz Garavito Beltrán*[3]

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ABSTRACT

Objective. *To assess the change in five health equity dimensions for the Colombian health system: health condition, social health insurance coverage, health services utilization, quality, and health expenditure.*

Methods. *A common standardization methodology was used to assess equity in countries in the western hemisphere. Data come from the Colombian Life Quality Survey. After indirect standardization, concentration indices and horizontal inequity were estimated. A decomposition analysis was developed. Aggregate household monthly expenditure per equivalent adult was considered as the standard of living.*

Results. *Results show important progress in equity with regard to social health insurance affiliation, access to medicine and curative services, and perception of the quality of health care service. Important gaps persist, which affect poorer populations, especially their perception of having a bad health condition and their access to preventive medical and dental services.*

Conclusions. *The Colombian model needs to advance in implementing preventive public health strategies to cope with increasing demand concomitant with increased social insurance coverage. The population's access to total services in cases of chronic illness and oral health services must increase and benefit plans must be integrated while preserving the recorded achievements in equity. Decomposition of the concentration index shows that inequities are mostly explained by socioeconomic variables and not by health-related factors.*

Key words Equity in health; health systems; equity in access; health economics; health policy; Colombia.

The Colombian reform in 1993 led to implementation of a social health insurance scheme with two objectives: expansion of coverage through universal health insurance as the previous segmented scheme covered only 15.7% of the population (1), who were the wealthiest and employed in the formal sector of the economy, and harmonization of health care benefits focusing on poor populations, subsidizing demand, and explicitly guaranteeing a benefit plan. Addressing inequity was the goal. Before the reform, health inequity was prominent. Although 84.3% of medical needs were addressed in the wealthiest economic quintile, only 16% were addressed in the poorest quintile (2). The financing mechanism was based on crossed-subsidy social security payments whereby people with higher incomes subsidized poorer populations, and the national government provided a contribution of equal size through budget reserves. A radical change in the system was needed so the health reform was introduced. Changes include expansion of social health insurance (contributory and subsidized), a benefit package with warranty of coverage, and integration of public and private providers in a regulated competition scheme seeking to increase efficiency in delivery of health services.

[1] Ministerio de Salud y Protección Social, Viceministerio de Salud y Prestación de Servicios, Bogotá, Colombia. Send correspondence to: Fernando Ruiz Gómez, fruiz@minsalud.gov.co

[2] Pontificia Universidad Javeriana, Centro de Proyectos para el Desarrollo, Cendex, Bogotá, Colombia.

[3] Processum Consultoria Institucional SAS, Bogotá, Colombia.

According to Garavito (3), 88.2% of the Colombian population is now insured. Growth in coverage was achieved through expansion from individual to family coverage in the contributory scheme and affiliation of the lower-income population through the subsidized regimen. Expansion in the subsidized policy from 2003 to 2007 is responsible for the greatest part of the growth in coverage.

Evidence on the impact of the Colombian reform on equity is scarce and contradictory. One study found no positive impacts from health reforms in Brazil and Colombia with regard to life expectancy and three mortality indicators from assessing trends in the period 1960–2005 (4). Most Colombian health reform evaluations have focused on measuring the progress in access to health service and financial protection attained by the poorest segment of the population. Another study found that social health insurance in its initial stage had increased the use of medical services as a consequence of the progressive accumulation of better health conditions and coverage for chronic illness (5). A prospective cohort study evidenced advances in access to service for the insured poor population (6) and greater out-of-pocket expenditure among the noninsured population (7). An econometric analysis based on the living standards survey showed an increase in use by the subsidized population and in protection against financial shocks among vulnerable populations: residents in rural areas, independent workers, and people in conditions of extreme poverty (8). The one-year follow-up of Bogota's population estimated fairly low (4.9%) health-related catastrophic expenditures (9). Two recent studies on the determinants of affiliation and effective consumption of social health insurance showed important differences in the likelihood of being insured, access to services, and intensity of health care service use between the urban and the rural populations and better access and consumption for populations with chronic illnesses such as high blood pressure, tuberculosis, and cancer (10). Furthermore, greater access to services for persons with specific pathologies, such as diabetes, has been documented (11). The main criticisms of the health system are directed toward bad socioeconomic classification affecting the poorer populations (12), low service coverage for the poorer populations (13), the potentially regressive nature of out-of-pocket expenditure due to the copayment system (14), and inefficient access to service for the more vulnerable populations (15). However, most of these studies are on care, with low representativeness, and they do not address changes over time (16).

Equity attainments on access, quality, and families' out-of-pocket expenditure would justify the society investment and radical institutional changes implemented by the health reform. This attainment has not been measured on a timeline basis and has not been related to socioeconomic status and the health needs of the population. The results in equity maybe an effective way to measure outcomes in the Colombian system and to drive future regulations once universal coverage is attained.

The available evidence has limitations due to the lack of baselines, standardized longitudinal evaluations, and low representativeness. The absence of robust equity analysis is an additional problem as most studies present evidence on partial effects or case studies with limited statistical power. Recent studies on equity have contributed statistical evidence for strong evaluations of the health situation in different countries (17, 18).

This study seeks to assess the Colombian health system's progress in equity by means of a standardization methodology and by using representative population surveys of living conditions. The objective is to weigh variations in selected health variables and access to services among different population groups based on their standards of living. The analysis looks at changes in health variables from 2003 to 2008. The link between these changes in the health system and progress in health is an indirect measure of performance of the Colombian health system.

MATERIALS AND METHODS

A longitudinal trend study was carried out that compares indicators of health inequality from 2003 to 2008 as cut points. The unit of analysis is the individual. All adults 18 years of age or older are included. A general methodology paper from the multicountry study developed under the Equilac II Project is provided in this issue (19). The methodologic framework adopted was developed by O'Donnell et al. (20). Data from the Life Quality Survey (Encuesta de Calidad de Vida) were used, given their representativeness and standardization. This survey has been conducted by the Colombian National Statistics Department [Departamento Administrativo Nacional de Estadística (DANE)] since 1993. It contains information about socioeconomic conditions and access to social services. It became evident from a review of the macro-data from the 1993 and 1997 surveys that there were differences in accumulated expenditure and revenue and restrictions in age groups for access to health care service variables. Therefore, the analysis was done using the more homogenous 2003 and 2008 surveys. The Life Quality Survey data are representative for the national, urban, and rural populations as well as for nine regions: Bogotá, Antioquia, Valle del Cauca, Atlántico, Oriental, Central, Pacífica, the San Andrés and Providencia islands, and Orinoquía, Amazonía, and Putumayo. The last three areas are integrated in a single region. The information was analyzed with the Stata 11.0 program. To consolidate a household's accumulated expenditure and enable comparison with other national studies, the methodology used to aggregate and weigh the different expenditure headings was developed by the Colombian National Planning Department (Departamento Nacional de Planeación) and by DANE.

Health sector variables were grouped as follows (Table 1): health status, health care utilization, social health insurance, health service quality, and health expenditures. Variables are described in Table 1.

The method includes a description of the 2003–2008 changes for health indicator classified in five health dimensions: health status, health care utilization, social health insurance, health service quality, and health expenditure. Monthly household expenditure per equivalent adult was used as the socioeconomic variable. Unstandardized and standardized indices and curves were estimated. Decompositions between need (health) and non-need (socioeconomic and other factors) conditions were also incorporated.

RESULTS

The set of analysis variables encompasses different dimensions of health equity in the population. Table 2 presents the descriptive results with means,

TABLE 1. Description of health variables, Colombia, 2003 and 2008

Variable	Description
Health status	
Less than good health status	Categorical: how do you describe your general health status? 0: very good or good, 1: less than good.
Presence of chronic illness	Categorical: do you have any chronic disease (hypertension, diabetes, etc.)? 1: yes, 0: no.
Number of days of sick leave	Numeric count: how many days did you stop doing your normal activities due to health problems (illness, accident, dental problems, or other health problem in past 30 days that has not involved inpatient events)?
Health care utilization	
Any preventive physician visit	Categorical: without being sick or for prevention, at least once a year get checked by a doctor: 1: yes, 0: no.
Any preventive dentist visit	Categorical: without being sick or for prevention, at least once a year get checked by a dentist: 1: yes, 0: no.
Any curative visit	Categorical: to address health problem in past 30 days (illness, accident, dental problems, or other health problem that has not involved inpatient events). Did you visit a general practitioner, specialist, homeopath, acupuncturist, dentist, therapist, or health institution? 1: yes, 0: no.
Any referral or visit to a specialist	Categorical: to address health problem in past 30 days (illness, accident, dental problems, or other health problem that has not involved inpatient events). Were you referred or appealed to a specialist? 1: yes, 0: no.
Any hospitalization	Categorical: have you been an inpatient during past 12 months? 1: yes, 0: no.
Social health insurance	
Social health insurance coverage	Categorical: are you affiliated with some social health insurance entity? 1: yes, 0: no.
Rural insurance coverage	Categorical: are you affiliated with some social health insurance entity? 1: yes, 0: no.
Urban insurance coverage	Categorical: are you affiliated with some social health insurance entity? 1: yes, 0: no.
Contributive plan affiliation	Categorical: are you affiliated with contributory insurance? 1: yes, 0: no.
Subsidized plan affiliation	Categorical: are you affiliated with subsidized insurance? 1: yes, 0: no.
Health service quality	
Perceived service quality of general practitioner or specialist (less than good)	Categorical: in general terms, do you think service quality was: 0: good, 1: less than good.
Perceived hospital service quality (less than good)	Categorical: do you believe the quality of hospital service was: 0: good, 1: less than good.
Total or partial medicine supply	Categorical: in past 30 days, what medicine prescribed due to health problems (illness, accident, dental problems, or other health problem that has not involved inpatient events) was given on behalf of the institution with which you are affiliated?
Waiting days: medical or dental visit	Numeric count: how many days elapsed between the time to make the appointment and the time of consultation with general practitioner or dentist?
Waiting days: specialist visit	Numeric count: how many days elapsed between the time to make the appointment and the time of consultation with specialist?
Health expenditures	
Contributions to social health insurance	Continuous: how much do you pay or are discounted monthly to be covered by a health social security institution?
Outpatient out-of-pocket expenditure, specific health problem	Continuous: how much did you pay in total for health care (medical consultation, tests, and medicine) due to health problems in past 30 days (illness, accident, dental problems, or other health problem that has not involved inpatient events)?
Inpatient out-of-pocket expenditure	Continuous: how much did you pay in total for hospitalizations in past year (medical consultation, tests, and medicine)?
Aggregated out-of-pocket expenditure on health	Continous: includes monthly expenditure on cotton, gauze, disinfectant, alcohol, bandages, contraceptives, aspirin, other items of medical kit, medical formulas, or purchase of drugs consumed regularly, last payment of health care for health problems in past month, full payment for hospitalization if hospitalized in past year, and monthly payments or discounts by plans or complementary health insurance.
Standard of living	
Expenditure	Continuous: household expenditure per equivalent adult.
Other	
Age and sex	Categorical: six age and sex categories for males and females in age groups 18–44, 45–59, 60 or older
Geographic region	Categorical: Atlántica, Oriental, Central, Pacifica, Bogotá, Antioquia, Valle, San Andrés, Orinoquía, Amazonía.
Area of residence	Categorical: urban, rural.
Economic activity	Categorical: employed, unemployed, economically inactive population with working capacity, economically inactive population without working capacity.
Occupation type	Categorical: private company or government employee, day laborer, domestic employee, independent, employer, unpaid worker or helper.
Sector worker	Categorical: formal, informal.
Education	Categorical: highest level of education attained. None, elementary or primary, high school or secondary, graduate degree, postgraduate degree.
Marital status	Married, single, divorced, widowed, cohabit.
Private health insurance	Categorical: yes/no.
Health insurance	Categorical: unaffiliated, contributive plan affiliation, subsidized plan affiliation, special plan affiliation, other.
Socioeconomic stratum	Categorical: 1, 2, 3, 4, 5, 6.

standard deviations, and differences of means for the measurements in 2003 and 2008. A 95% confidence interval for the mean is provided; *t*-tests for the mean difference between 2008 and 2003 were also performed.

The descriptive results show slight changes in health conditions during the analyzed period. Outcomes for health status and presence of chronic illness improved and differ from the increase found in the number of sick leave days for 2008. Social insurance coverage reported a significant growth of 23%. Most of this growth can be attributed to a subsidized plan expansion that produced a displacement on the relative share of the contributive regimen in overall social

TABLE 2. Descriptive statistics for health variables, Life Quality Survey, Colombia, 2003 and 2008

	2003			2008			Mean difference [mean (2008) – mean (2003)]
	Mean	Standard deviation	95% confidence interval	Mean	Standard deviation	95% confidence interval	
Health condition							
Less than good health status	0.34	0.48	0.34–0.35	0.29	0.45	0.28–0.29	–0.05[a]
Presence of chronic illness	0.19	0.39	0.18–0.19	0.15	0.36	0.15–0.16	–0.04[a]
Days of sick leave	5.16	10.79	4.88–5.44	6.20	14.70	5.79–6.62	1.04[a]
Social health insurance							
Social health insurance coverage	0.64	0.48	0.63–0.64	0.87	0.34	0.86–0.87	0.23[a]
Rural insurance coverage	0.55	0.50	0.54–0.56	0.85	0.35	0.85–0.86	0.30[a]
Urban insurance coverage	0.67	0.47	0.66–0.67	0.87	0.34	0.86–0.87	0.20[a]
Contributive plan affiliation	0.60	0.49	0.60–0.61	0.49	0.50	0.48–0.50	–0.11[a]
Subsidized plan affiliation	0.34	0.47	0.33–0.34	0.47	0.50	0.47–0.48	0.13[a]
Health service use							
Any preventive physician visit	0.47	0.50	0.47–0.48	0.54	0.50	0.53–0.54	0.07[a]
Any preventive dentist visit	0.32	0.47	0.32–0.32	0.35	0.48	0.34–0.35	0.03[a]
Any curative visit	0.69	0.46	0.67–0.70	0.78	0.41	0.77–0.80	0.09[a]
Any referral or visit to specialist	0.31	0.46	0.29–0.32	0.34	0.47	0.33–0.36	0.03[a]
Any hospitalization	0.08	0.27	0.08–0.08	0.07	0.26	0.07–0.08	–0.01
Health service quality							
Perceived service quality of general practitioner or specialist (less than good)	0.23	0.42	0.22–0.24	0.23	0.42	0.22–0.25	0.0
Perceived hospital service quality (less than good)	0.18	0.39	0.17–0.20	0.17	0.38	0.16–0.19	–0.01[b]
Total or partial medicine supply	0.53	0.50	0.51–0.54	0.75	0.44	0.73–0.76	0.22[a]
Waiting days: medical or dental visit	1.96	4.69	1.81–2.11	3.09	6.07	2.89–3.28	1.13
Waiting days: specialist visit	10.94	21.04	9.88–12.01	12.55	19.73	11.45–13.66	1.61[a]
Health expenditure deflated by CPI 2010 (NEER 2010 = $1 897.89 per U.S. dollar)							
Contribution to social health insurance per month (U.S. dollars)	36.15	39.81	35.54–36.76	36.89	43.33	35.85–37.93	0.74[a]
Outpatient out-of-pocket expenditure for specific health problem per month (U.S. dollars)	28.16	123.38	24.74–31.58	13.11	66.36	11.01–15.21	–15.05[a]
Inpatient out-of-pocket expenditure per year (U.S. dollars)	136.93	481.23	122.39–151.47	68.68	328.49	55.45–81.92	–68.25[a]
Aggregated out-of-pocket expenditure on health per month (U.S. dollars)	17.34	165.02	15.97–18.72	10.47	98.97	9.38–11.56	–6.87[a]

Source: Life Quality Survey, 2003 and 2008.
CPI: consumer price index, NEER: normal effective exchange rate.
[a] $P < 0.01$.
[b] $P < 0.05$.

insurance coverage. A striking result is the increase in urban and rural insurance coverage with an 11% increase in rural insurance above the expansion rate reported in terms of urban insurance enrollment. These results are attributable to subsidized insurance, as the contributive insurance did not report an increase during that period ($P < 0.01$).

An important aspect of social insurance equity worth considering is that insurance coverage leads to changes in access to health services. The study results indicate significant increases in preventive and curative outpatient services. However, access to preventive oral health services is fairly low. The rates of inpatient services are quite high and show no significant changes during the period analyzed.

Quality results indicate a downward trend in the opportunity indicators, particularly waiting days for consultation with a specialist ($P < 0.01$). However, the average 22% increase in the total or partial supply of medicine is a significant outcome of the quality of service delivery, assuming that the medicines provided are medically necessary. This result could be highly related to social insurance coverage given the insurer's liability under the law for delivering medications. Contributive and subsidized health plans include guarantees for medicines through a list of medications. Health delivery services in the safety net do not include a guarantee.

The monetary results for out-of-pocket expenses are presented in constant prices (U.S. dollars) adjusted to 2010. Contributions for health insurance coverage refer mainly to the worker population's monthly payroll payments for the contributive regimen enrollment. The change in the cash contribution load (less than $1) reported during the period is slight but statistically significant. However, an impressive 53% reduction was evidenced in out-of-pocket expenditures for outpatient services. Similarly, out-of-pocket expenditures for inpatient services declined by 50%. The population average monthly out-of-pocket expenditure dropped 39.6% between 2003 and 2008. These results are significant at the 99% level.

Table 3 presents the distribution of each health outcome variable by the population classified according to socioeconomic quintile, from the poorest 20% to the richest 20%. Table 4 presents inequity outcomes across the population measured by the concentration index (CI) and the horizontal inequity index (HI); the curves are provided in supplementary material.

The results on health condition variables show inequality for the poor in the perception of bad health. The HI for the number of days of sick leave is not statistically significant, which means distribution across socioeconomic quintiles

TABLE 3. Mean and standardized distribution by quintile, Colombia, 2003 and 2008

Variable	Year	Mean	Poorest 20%	2nd poorest 20%	Middle	2nd richest 20%	Richest 20%
Health condition							
Less than good health status	2003	0.3441	0.4724	0.4098	0.3588	0.2908	0.1889
	2008	0.2867	0.3906	0.3468	0.3030	0.2320	0.1613
Presence of chronic illness	2003	0.1855	0.1685	0.1777	0.2014	0.1925	0.1872
	2008	0.1520	0.1300	0.1450	0.1603	0.1571	0.1676
Days of sick leave	2003	5.1586	4.9948	5.9787	4.7888	5.2178	4.8239
	2008	6.2045	6.3830	7.0804	5.3137	6.5093	5.7665
Social health insurance							
Social health insurance coverage	2003	0.6378	0.5196	0.5663	0.6033	0.6845	0.8154
	2008	0.8654	0.8395	0.8388	0.8547	0.8816	0.9124
Rural insurance coverage	2003	0.5459	0.5367	0.5354	0.5430	0.5630	0.6649
	2008	0.8528	0.8460	0.8664	0.8576	0.8374	0.8507
Urban insurance coverage	2003	0.6666	0.4958	0.5784	0.6186	0.7040	0.8257
	2008	0.8689	0.8311	0.8266	0.8543	0.8872	0.9158
Contributive plan affiliation	2003	0.6010	0.1598	0.4147	0.6263	0.7712	0.8461
	2008	0.4908	0.1132	0.2866	0.5018	0.6893	0.8217
Subsidized plan affiliation	2003	0.3367	0.8307	0.5629	0.3204	0.1485	0.0393
	2008	0.4715	0.8793	0.6963	0.4718	0.2552	0.1004
Health service use							
Any preventive physician visit	2003	0.4711	0.3214	0.3935	0.4464	0.5355	0.6588
	2008	0.5380	0.4145	0.4925	0.5494	0.5803	0.6533
Any preventive dentist visit	2003	0.3195	0.1340	0.2189	0.2960	0.3836	0.5650
	2008	0.3482	0.1764	0.2552	0.3430	0.4195	0.5469
Any curative visit	2003	0.6859	0.6046	0.6395	0.6464	0.7193	0.8033
	2008	0.7847	0.6949	0.7751	0.7801	0.8299	0.8404
Any referral or visit to a specialist	2003	0.3084	0.1784	0.2258	0.3222	0.3227	0.4268
	2008	0.3429	0.2330	0.3205	0.3337	0.3759	0.4283
Any hospitalization	2003	0.0784	0.0628	0.0728	0.0810	0.0808	0.0948
	2008	0.0747	0.0684	0.0752	0.0657	0.0845	0.0798
Hospital service quality							
Perceived service quality of general practitioner	2003	0.2292	0.2115	0.2154	0.2599	0.2319	0.2202
or specialist (less than good)	2008	0.2325	0.2008	0.2132	0.2224	0.2481	0.2706
Perceived hospital service quality (less than	2003	0.1849	0.2660	0.1660	0.1645	0.1723	0.1694
good)	2008	0.1723	0.1454	0.1884	0.1419	0.1758	0.2069
Total or partial medicine supply	2003	0.5289	0.5513	0.4501	0.5326	0.5349	0.5735
	2008	0.7464	0.7644	0.7410	0.7597	0.7260	0.7441
Waiting days: medical or dental visit	2003	1.9621	1.2215	1.6408	1.7498	2.3162	2.5711
	2008	3.0853	2.1091	2.9608	3.5956	3.2859	3.2661
Waiting days: specialist visit	2003	10.9442	12.8396	13.8968	13.2735	9.9250	8.1973
	2008	12.5544	10.1421	11.8496	12.0511	10.5573	16.5821
Health expenditure deflated by CPI 2010 (NEER 2010 = 1 897.89 per U.S. dollar)							
Contribution to social health insurance per month	2003	36.15	18.40	22.57	24.72	29.99	50.54
(U.S. dollars)	2008	36.89	18.65	21.11	24.55	29.45	53.60
Outpatient out-of-pocket expenditure for specific	2003	28.16	5.31	14.56	20.43	26.41	66.61
health problem per month (U.S. dollars)	2008	13.11	5.03	6.06	8.15	12.54	32.05
Inpatient out-of-pocket expenditure per year	2003	136.93	70.62	91.28	114.64	108.53	274.90
(U.S. dollars)	2008	68.68	24.63	34.57	66.36	88.38	129.96
Aggregated out-of-pocket expenditure on health	2003	17.34	3.77	8.75	12.90	14.01	47.28
per month (U.S. dollars)	2008	10.47	1.87	3.66	6.02	10.74	30.07

Source: Life Quality Survey, 2003 and 2008, Cendex Calculations.
CPI: consumer price index, NEER: normal effective exchange rate.

is equal. With regard to the presence of chronic disease, there is a pro-rich index, although the health condition distribution for all quintiles seems to improve in 2008 for perception of bad health and presence of chronic disease.

Health insurance coverage shows impressive progress toward equity among populations. The rural CI indicators demonstrate equity attainment in social insurance with equal distribution among socioeconomic quintiles. The urban coverage share indicates a slight pro-rich advantage. The differences found in the equity indexes by insurance type illustrate the biased legal definition of the insurance regimens with a contributory plan affiliation geared toward the wealthiest and the formal sector of the economy, unlike the subsidized regimen, which focuses on the poor and informally employed. It is worth mentioning the generalized loss in participation across all socioeconomic quintiles in the contributive plan during the period analyzed. The opposite effect is found for the subsidized regimen.

The results for health service utilization indicate equity improvements in the use of all preventive and curative types of service. However, there is a wide gap in the proportion of health service utilization among the different quintiles. The poorest tend to use services less—preventive and curative as well as outpatient and inpatient. The very low use of dental preventive and medical specialist services by the lowest quintile is striking.

The HI for health service quality shows slight improvements in benefiting

TABLE 4. Horizontal inequity index and differences, Colombia, 2003 and 2008

	2003		2008		HI difference
	CI	HI	CI	HI	2008–2003
Health condition					
Less than good health status	–0.1640[a]	–0.166[a]	–0.1556[a]	–0.1666[a]	–0.0005
Presence of chronic illness	0.0172[b]	0.0214[a]	0.0493[a]	0.0495[a]	0.0281
Days of sick leave	–0.0529[a]	–0.0131	–0.0462[c]	–0.0239	–0.0108
Social health insurance					
Social health insurance coverage	0.0960[a]	0.0934[a]	0.0191[a]	0.0180[a]	–0.0754
Rural insurance coverage	0.0149[b]	0.0162[b]	0.0026	0.0023	–0.0139
Urban insurance coverage	0.1001[a]	0.0983[a]	0.0234[a]	0.0227[a]	–0.0756
Contributive plan affiliation	0.2280[a]	0.2288[a]	0.3073[a]	0.3083[a]	0.0795
Subsidized plan affiliation	–0.4724[a]	–0.4736[a]	–0.3521[a]	–0.3529[a]	0.1207
Health service use					
Any preventive physician visit	0.1442[a]	0.1450[a]	0.0906[a]	0.0913[a]	–0.0537
Any preventive dentist visit	0.2825[a]	0.2690[a]	0.2282[a]	0.2215[a]	–0.0475
Any curative visit	0.0529[a]	0.0576[a]	0.0381[a]	0.0373[a]	–0.0203
Any referral or visit to a specialist	0.1412[a]	0.1566[a]	0.0932[a]	0.1090[a]	–0.0476
Any hospitalization	0.0460[a]	0.0773[a]	0.0012	0.0361[b]	–0.0412
Hospital service quality					
Perceived service quality of general practitioner or specialist (less than good)	–0.0207	0.0038	0.0300	0.0595[a]	0.0557
Perceived hospital service quality (less than good)	–0.1008[a]	–0.0822[a]	0.01786	0.04199	0.1242
Total or partial medicine supply	0.0255[b]	0.0244[b]	–0.0068	–0.0069	–0.0313
Waiting days: medical or dental visit	0.1190[a]	0.1395[a]	0.0519[b]	0.0641[a]	–0.0755
Waiting days: specialist visit	–0.1441[a]	–0.1089[a]	0.0659[c]	0.0713[b]	0.1802
Health expenditure					
Contribution to social health insurance per month	0.2184[a]	0.2159[a]	0.2513[a]	0.2501[a]	0.0342
Outpatient out-of-pocket expenditure for specific health problem per month	0.3741[a]	0.4186[a]	0.3973[a]	0.4081[a]	–0.0105
Inpatient out-of-pocket expenditure per year	0.2890[a]	0.3011[a]	0.3577[a]	0.3291[a]	0.0280
Aggregated out-of-pocket expenditure on health per month	0.4217[a]	0.4752[a]	0.5167[a]	0.5374[a]	0.0622

Source: Life Quality Survey, 2003 and 2008.
CI: concentration index, HI: horizontal inequity index.
[a] $P < 0.01$.
[b] $P < 0.05$.
[c] $P < 0.1$.

the poor population. In fact, standardized CIs of perceived hospital service quality and medicine supply demonstrate equity, without major differences among the socioeconomic groups for 2008. However, there is a fairly high perception of bad quality with significant deterioration in timely access to services. Waiting days for specialist visits improved for the poorest quintiles, while there is a relevant deterioration for the two wealthiest quintiles. It is important to highlight the improvement in access to medicines. This effect extends to all socioeconomic groups.

The health expenditure results indicate an unequal HI affecting the wealthiest population. The distribution by quintile indicates wide gaps between rich and poor quintiles both in contributions and in different types of out-of-pocket expenses. There is a clear tendency toward reduced out-of-pocket payments for outpatient and inpatient services between 2003 and 2008. The aggregate out-of-pocket expense also reported a significant reduction for 2008. These effects were relevant for all quintiles, although the reduction in out-of-pocket expenditure tends to be higher in the poorest populations.

The HI values, which are statistically significant, were decomposed into the contributions derived from non-need variables. Figure 1 shows the results from this process for both years analyzed. Household expenditure explains most of the inequalities for all health outcome variables.

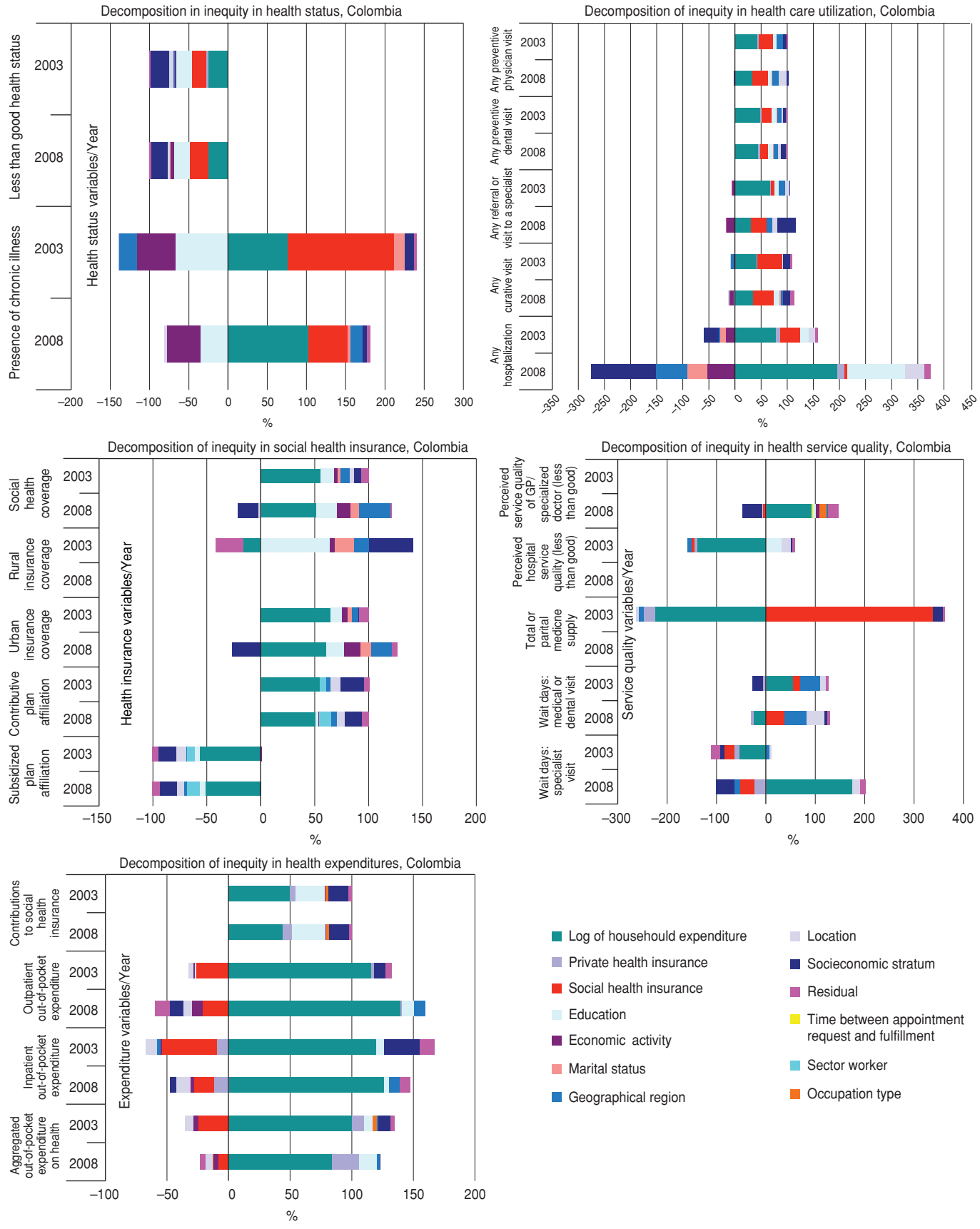
Household expenditure, social health insurance, and education contribute to the unequal distribution in the positive perception of health status and health care utilization. Household expenditure, social health insurance, rural coverage, urban coverage, education, geographic region, and economic activity explain most of the pro-rich HI values. Marital status and socioeconomic strata have a significant effect on rural social insurance coverage.

Less than good perceived service quality for general practitioners or specialized doctors is explained mainly by occupation. The pro-rich concentration for medicine supply is associated with social health insurance for 2003. The pro-rich HI for waiting days for medical or dental visits is related to social insurance and geographic region. A pro-rich deviation in specialist visits for 2008 is associated with private insurance. In contrast, this HI is related to geographic area for 2008. The health expenditure variables are mainly related to the household expenditure. These results are significant ($P < 0.01$).

DISCUSSION

Various studies in the scientific literature on health equity in Latin America

FIGURE 1. Contribution of non-need variables to inequity (horizontal inequity index), Colombia, 2003–2008



GP: general practitioner.

present different limitations in terms of their methodology and comparability among health systems. This difference explains current limitations in the conceptual and methodologic approaches in measuring equity (21).

Furthermore, there is an attribution issue: what effect may health systems have on final mortality and health conditions? System arrangements seeking access efficiency may take long periods to effect changes in coverage and improve health status. Time windows may be different for the accurate evaluation of such effects. This difference can lead to biased conclusions about system effectiveness (4, 22). It is important to understand the contribution of socioeconomic and needs factors in generating equity from health systems.

Like other studies carried out in Latin America (23, 24), those conducted in Colombia (25) do not confront the horizontal equity issue. Most studies measure differences in health variables without addressing the need condition. Therefore, they do not formally estimate inequity.

This study design established the relation of such socioeconomic conditions, the needs conditions, and a set of variables that will estimate the results of the Colombian system in terms of health, insurance, access, quality, and out-of-pocket expenditures. The time window analyzed (2003–2008) evinces the biggest expansion in social insurance coverage. This growth was enabled by the government's investment in expanding the subsidized regimen. It is possible that results capture the effects in coverage and access to ambulatory services. The effects on access for inpatients, out-of-pocket expenses, quality of health services, and health status could take some time to be realized.

Unlike the extensive qualitative evidence available with regard to negative perceptions about the reform, this study's results evidence significant progress in terms of access to service and financial protection beyond the issue of universal insurance coverage. Both the CI breakdown and changes in the relative share of the poorest segment of the population point to relevant progress in equity goals set forth by the 1993 health reform. However, the negative results in terms of perception of quality and timely access to service imply possible constraints in the future.

The results raise questions about whether the service structure will have the capacity to support insurance expansion in the short term while maintaining the equity levels reached. Another critical aspect relates to the trade-off between the contributory and subsidized regimens in dual operation conditions. This characteristic concerns differences in the private contributory scheme and the quasi-public subsidized regimen. Results indicate a potential crowding out from the subsidized to the contributory scheme, which may be expressed as the reduction in contributive share for the higher-income population. This type of effect has been analyzed in the health system context (26, 27). However, it raises questions about incoming changes in the subsidized regimen with regard to socioeconomic and demographic issues. The progressivity of taxes and contributions could have changed because of increase enrollment of rich people in the subsidized regimen.

The results of the study also highlight the need for thorough regulatory monitoring and adjustment of the system, with an emphasis on analysis of the relation between growth and coverage and the benefits promised to the population. This factor implies the effective availability of human and institutional resources. Further studies must address supply capacity and the ability to cope with the increased demand for health services derived from health plan equalization implemented in 2012. These Colombian reform results may become relevant for developing and adjusting other systems that have adopted the objective of universal coverage and guaranteed institutionalized population rights and may include the growth of private providers as a strategy to expand coverage.

The main limitations of this study are related to restrictions on the data used. The strengths of the methodology are the comparability and the use of comprehensive indicators toward equity differences among socioeconomic groups. New studies should emphasize the need and non-need variables used in decomposition of the CI.

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Conflict of interest. None

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RESUMEN

Análisis de la equidad en cinco dimensiones del sistema de salud de Colombia, 2003–2008

Objetivo. Evaluar la evolución de la equidad en el sistema de salud colombiano, según cinco dimensiones: condición de salud, cobertura del seguro social de salud, utilización de los servicios de salud, calidad y gasto en salud.

Métodos. Se utilizó una metodología común de estandarización para evaluar la equidad en países del continente americano. Los datos se tomaron de la Encuesta de Calidad de Vida de 2003 y 2008. Después de la estandarización indirecta se estimaron los índices de concentración y de inequidad horizontal. Se aplicó un análisis de descomposición; se estimó el nivel de vida a partir del gasto agregado mensual del hogar por adulto equivalente.

Resultados. La equidad aumentó notablemente con respecto a la afiliación al seguro social de salud, el acceso a los servicios médicos y curativos, y la percepción de la calidad del servicio de atención sanitaria. Persisten aún considerables brechas, que afectan a las poblaciones más pobres, especialmente en su percepción de tener problemas de salud y su acceso a servicios preventivos médicos y odontológicos.

Conclusiones. Se requiere avanzar en la aplicación de las estrategias de salud pública preventivas en Colombia para afrontar el aumento de la demanda ocasionado por la mayor cobertura del seguro social. Debe mejorarse el acceso de la población a servicios integrales en los casos de enfermedades crónicas y a servicios de salud bucodental, y los planes de beneficios deben integrarse sin afectar a los logros en equidad ya registrados. Las inequidades se explican mejor por las variables socioeconómicas que por los factores relacionados con la salud.

Palabras clave Equidad en salud; sistemas de salud; equidad en el acceso; economía de la salud; política de salud; Colombia.

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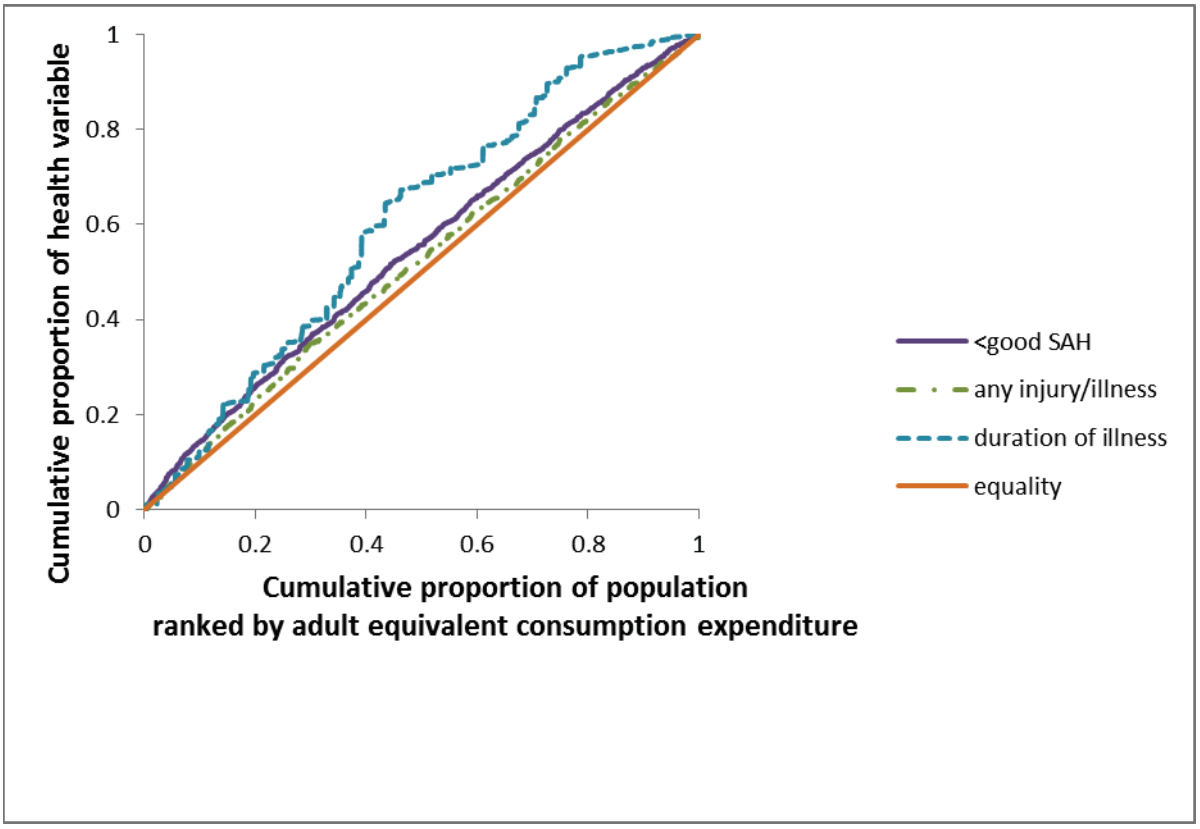
Material suplementario / Supplementary material / Material supplementar

Supplementary material to: Scott E, Theodore K. Measuring and explaining health and health care inequalities in Jamaica, 2004 and 2007. Rev Panam Salud Publica. 2013;33(2):116–21.

This material formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

CURVE 1. Concentration curves for standardized health status variables, Jamaica, 2007.



CURVE 2. Concentration curves for standardized health care utilization variables, Jamaica, 2007.