Experiences with primary care associated to health, socio-demographics and use of services in children and adolescents

Experiencias con la atención primaria asociadas a la salud, características sociodemográficas y uso de servicios en niños y adolescentes

Experiências com a atenção primária associadas à saúde, características sociodemográficas e uso de serviços em crianças e adolescentes

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Abstract

This study aimed to evaluate user experiences with primary care for children and adolescents according to health, socio-demographic characteristics, and use of healthcare services. The 2006 Catalan Health Interview Survey *studied a representative sample of the population aged 0 to 14 (n = 2,200). Parents reported their experiences with primary care through 17 items from the* Primary Care Assessment Tool. *Multivariate models were fitted to estimate prevalence ratios (PR) of scoring low on experiences with primary care by health, use of services, and socio-demographic variables. A low first contact-accessibility score was associated with declared chronic conditions. Immigrant parents declared a poor experience with several primary care functions. A low score on first contact-accessibility, continuity of care, and cultural competence was less likely when children had double healthcare coverage and more likely when they had visited emergency services. Improvement of some aspects of primary care services may reduce both use of emergency services and inequity in this area.*

Primary Health Care; Health Services; Child; Adolescent

Resumen

Este estudio evaluó las experiencias en la atención primaria de salud para niños y adolescentes, considerando niveles de salud, características sociodemográficas y el uso de servicios de salud. La Encuesta de Salud de Cataluña de 2006 *incluyó una muestra representativa de la población de 0 a 14 años (n = 2.200). Personas adultas informaron sobre sus experiencias con la atención primaria de salud de sus hijos con una selección de 17 ítems del* Primary Care Assessment Tool. *Se estimaron razones de prevalencia (RP) de baja puntuación en seis funciones de la atención primaria de salud, mediante modelos multivariados. La declaración de enfermedades crónicas se asoció a la baja puntuación en primer contacto-accesibilidad. Los padres inmigrantes declararon peor experiencia con varias funciones de la atención primaria de salud. Las puntuaciones en primer contacto-accesibilidad, continuidad de la atención y competencia cultural fueron más altas cuando los niños tenían cobertura sanitaria doble y más bajas cuando habían visitado los servicios de emergencia. Mejoras en algunas funciones de la atención primaria de salud podrían reducir el uso de servicios de urgencia y la inequidad.*

Atención Primaria de Salud; Servicios de Salud; Niño; Adolescente

Introduction

Over the past few decades, several countries have reinforced their primary care services to provide more equitable access to health care, and to achieve more efficient care by strengthening primary care gatekeeping role and improving coordination with other services. Within this stronger role, primary care providers have been required to ensure accessible and integrated services which address the broad majority of health care needs, to develop sustained relationships with patients, and to practice within the context of family and community [1]. The extent to which primary care services achieve those objectives is a relevant issue for policy makers. However, several studies and reviews have underlined the need for improvements in the way primary health care is conceptualized and measured [2] and in the way in which indicators are developed [3]. The lack of reliable instruments to measure primary health care and the need to include the user's point of view in evaluations have also been pointed out [4,5].

Assessing users' experiences of primary care can provide valuable insights and offer a different perspective. For example, van Stralen et al. [6] demonstrated that user assessments of primary care were worse than those of professionals. Jerant et al. [7] showed that a reduced risk of mortality was associated with a better patient-reported access to primary care. Race/ethnicity, household poverty, status, parent education, and health insurance coverage are some of the socioeconomic features associated with differences in primary care experiences of access and continuity [8,9], but little is known how population health or the kind of services used impact user experience of different aspects of primary health care [10] An association between access or use of services and perceptions of those services, similar to that found in studies of patient-reported care coordination between different levels of care, could be expected [11].

Spain began to reform its health services under the General Health Law of 1986. At that time, it shifted from a social insurance model to universal tax-financed coverage, and the proportion of total health expenditure which was publicly financed increased [12]. The new primary care strategy was implemented between 1996 and 2003 and focused on strengthening teams at the first level of care. By the beginning of the 21st century, public health service coverage was almost universal and previous studies showed an acceptable level of user satisfaction [13,14]. Private healthcare coverage was also frequent for children, a situation which generated some inequity in access or use of services by, for example, reducing waiting time for physician visits [15] or emergency services [16]. Improvements in areas such as drug prescription, costs per inhabitant [13,17] and even population health status [5] suggested a positive impact of primary care reform. At the same time, there were demographic changes within the Spanish population, characterized by an increasing proportion of immigrants and higher birth rates. At that time, there was considerable interest as to whether the health service would be able to provide primary care which met its theoretical obligations, and whether there might be differences in experiences of primary care according to health needs and socioeconomic or utilization variables. For example, it is known that primary care services can improve adolescent behaviours when adequate preventive interventions are delivered [18].

In Catalonia, one of the Autonomous Communities of Spain, health interview surveys are conducted regularly to monitor population health and the results of social and health policies. Implementation of the above mentioned reforms in Spain and Catalonia led to interest in assessing primary care and therefore to the inclusion of additional questions for this purpose in the 2006 edition of the *Catalan Health Interview Survey*. The objective of the present study was to assess experience with primary care and to investigate the association between reported experience and health status, socio-demographic characteristics, use of healthcare services and healthcare coverage in the population of Catalonia under 15 years of age.

Methods

Design and population

The *2006 Catalan Health Interview Survey* was a cross-sectional study carried out in a representative sample of non-institutionalized residents of Catalonia. For the purposes of the present analysis, the population of interest was non-institutionalized children under the age of 15 years. Sample selection used a multi-stage design with stratification by age and sex; sampling also ensured that data was collected for all 36 "health care areas" ("Arees Integrals de Salut") of the Catalan National Health Service. First, municipalities were randomly selected according to number of inhabitants and, second, individuals were also randomly selected based on distribution by age and sex from the population registry of the Statistical Institute of Catalonia. Replacement cases for first order eligible participants were selected to ensure similar characteristics by

age, sex, and geographical area. The sample size for children aged < 15 years was established at 2,200 and took into account the survey's multiple objectives. This sample size provided a margin of error of under 5%, with a confidence level of 95.5%, as well as the possibility of stratifying with adequate reliability to estimate prevalence and prevalence ratios in multivariate models. Parents received a letter by post from the Department of Health informing them about the survey before the interviewer visit. The sample size was reached with 65% of first selected cases and 22% of first replacement cases; the remainder were primarily second replacement cases. Reasons for replacement were: wrong or changed address, non-locatable, or repeated absence (28%), and parent refusal (7%). The survey questionnaire was administered during home-based interviews with a proxy respondent, preferably the child's usual caregiver [19].

Variables and instruments

Dependent variables were six of the attributes defined by Starfield [20] as desirable for primary care performance. These were addressed by a set of items selected from the *Primary Care Assessment Tools* (PCAT) [21] which were included in the 2006 survey questionnaire for children aged 0 years to 14 years. The 24 PCAT items selected facilitated identification of the primary care provider as the regular source of primary care or, if children did not have a primary care provider, the last physician they visited. Further items facilitate characterization of the primary care provider and 17 items are used to construct the 6 dependent variables: first contact (4 items, most of which address accessibility), continuity of care or longitudinal care (3 items), coordination of services (this domain includes 2 items and is answered only by those who visited a specialist during the last 12 months), comprehensiveness – services available (4 items), comprehensiveness – services received (2 items), and cultural competence (2 items). Further details on item selection, cross-cultural adaptation, and reliability and validity have been published elsewhere [22,23]. All items covering primary care domains are answered on a 4-point scale (1 = definitely not; 2 = probably not; 3 = probably yes; and 4 = definitely yes). Additional response options include "don't know" or "can't remember" [24]. Domain scores are calculated from the mean value for all items in the domain and can range between 1 and 4. We used a score of 3 points (corresponding to "probably yes") as a cut-point to help interpret experiences, an approach employed in previous studies [25,26]: 3 or more points was defined as the "expected primary care level" on each attribute; a score under 3 was considered to define a 'poor experience' with primary care on any attribute. This facilitated the analysis of poor experiences by other variables collected.

Independent variables were: child's age and sex; child's overall perceived health status, number of chronic conditions, psychiatric disorders (mean score on the 25 item *Strengths and Difficulties Questionnaire* [27]), number of parents in the household, number of people in the household, parents' educational level, parents' social class, parents' country of birth (Spain or outside Spain), healthcare coverage (only public health insurance or double health insurance; some people in Spain have both public and private health insurance), and general practitioner or pediatrician, specialist, or emergency department visits in the previous year. Social class was based on the head of household's current or previous job based on the Spanish Society of Epidemiology classification [28] class I included managerial and senior technical staff and independent professionals; class II, administrative and service workers, self-employed workers, and supervisors of manual workers; class III, skilled non manual workers; class IV, skilled (IVa) and partly skilled (IVb) manual workers; and class V, unskilled manual workers. These six original categories of social class were grouped into three for this analysis: I-II, III, and IV-V.

Statistical analysis

All analyses included the weights derived from the complex sampling design. First, the sample characteristics were described for the whole sample, and then by population groups according to whether the respondent had identified a center or health professional as a source of primary care or not. Between groups comparisons were performed using Chi square.

Means and 95% confidence intervals (95%CI) and medians and interquartile ranges (IQR) were calculated for the six primary care attributes as well as the percentages of the sample scoring low (under 3.0) on each attribute.

A bivariate and multivariate analysis were conducted for each attribute to determine whether there were statistically significant differences on each of the independent variables between respondents scoring low and those scoring over 3. Poisson regression models with robust variance [29] were then fitted to estimate the prevalence ratio (PR) and its 95%CI for scoring low on each primary care attribute based on health status, socio-demographic, and health care variables. Variables included in the multivariate models

were those which were statistically significant in the bivariate analysis and which were of interest from an epidemiological viewpoint (i.e. age, sex, social class). Statistical analyses were performed with Stata 9.0 (State Corp., College Station, USA).

Ethics

The *Catalan Health Interview Survey* is an observational health survey conducted by the Department of Health of Catalonia as part of routine governmental statistics gathering. The survey complies with all relevant national legislation on the protection and processing of personal data.

Results

Complete responses on the PCAT were obtained from parents once they had identified their child's usual source of primary care (92.5%) or a health professional visited during the previous year (2.7%). The other 4.8% of the sample declared that they did not have a regular source of care. Of the primary care provider identified, 83% were public health care system providers. Primary care providers were mainly located in primary care centers (78%), followed by single private offices (12%), and other centers or hospitals (10%). There were no missing values on PCAT items. 58% of the sample visited a specialist and consequently answered items on the coordination domain.

The 4.8% of the sample who declared that they did not have a regular source of care was excluded from the analysis. Within this group, parents were less likely to have a child under 12 years with a chronic condition or mental health problems (Table 1). Mean scores for the primary care attributes assessed on the PCAT were all over 3 points (Table 2). Over two thirds of the sample gave a high score (≥ 3) to their experience with primary care on the domains of first contact (74.1%), coordination (69.2%), and cultural competence (71.2%). The domains with the highest percentages of people with low scores were services received from the primary care provider (49.3%), continuity of care (39.4%), and services available (37.9%).

The bivariate analysis (Table 3) showed that, in general, declaring poor health was associated with reporting a poorer experience with primary care. Some socioeconomic characteristics and prior use of services were also associated to the quality of the experience with primary care.

The multivariate models for each of the six domains evaluated are presented in Table 4. Poor scores on the attribute of accessible first contact were more likely among respondents who reported having one (PR = 1.20; 95%CI: 1.01-1.43) or more chronic conditions (PR = 1.35; 95%CI: 1.13-1.62), when both parents were born outside Spain (PR = 1.20; 95%CI: 1.00-1.45), and among those who had used the emergency services in the last year (PR = 1.20; 95%CI: 1.03-1.39). This attribute was less likely to be scored poorly when children had double coverage (PR = 0.69; 95%CI: 0.56-0.86).

Poor scores on the attribute of continuity of care were more likely when both parents were born outside Spain (PR = 1.17; 95%CI: 1.02-1.34) and in those who had used the emergency services in the previous year (PR = 1.24; 95%CI: 1.11-1.39). Respondents whose child had double health-care coverage (PR = 0.68; 95%CI: 0.57-0.80), or who had visited the general practitioner or paediatrician (PR = 0.82; 95%CI: 0.70-0.97) or a specialist (PR = 0.86; 95%CI: 0.76-0.97) during the last year were less likely to score this attribute low.

Parents in the intermediate social class (PR = 0.78; 95%CI: 0.62-0.97) and those who had visited a general practitioner or pediatrician in the past year were less likely to report poor coordination between primary care and specialist services (PR = 0.72; 95%CI: 0.55-0.94).

No associations were observed for any of the variables analyzed with the domain of services available, whereas the services received subdomain of the comprehensiveness domain was more likely to be scored low by parents of children aged 6 to 11 years (PR = 1.18; 95%CI: 1.04-1.33) or 12 to 14 years (PR = 1.60; 95%CI: 1.42-1.81), by parents born outside Spain (PR = 1.17; 95%CI: 1.04-1.30), and those whose child was only covered by the public health care system (Table 4).

Cultural competence was more likely to be scored low by parents in the lower social class (PR = 1.25; 95%CI: 1.05-1.50), and those who had used emergency services in the past year (PR = 1.23; 95%CI: 1.07-1.41). On the other hand, cultural competence was less likely to be scored low when a child had double healthcare coverage (PR = 0.74; 95%CI: 0.61-0.91) and by parents of children who had visited the general practitioner or the pediatrician in the last 12 months (PR = 0.69; 95%CI: 0.57-0.83).

Discussion

This study reports on user experiences with primary care among parents of children aged 0-14 years in Catalonia, in 2006. High scores in all attributes evaluated indicated strong primary care in Spain, but some disadvantaged social

Table 1

Characteristics of the sample groups identifying (or not) a center or health professional as a source of primary care.

	Yes (n = 2,091)		No (n = 105)		Whole sample	
	n	%	n	%	n	%
Sex						
Girls	1,018	48.6	49	46.7	1,067	48.5
Boys	1,077	51.4	56	53.3	1,133	51.5
Age * (years)						
0-5	706	33.7	29	27.7	735	33.4
6-11	927	44.2	39	37.4	966	43.9
12-14	462	22.1	37	34.9	499	22.7
Perceived health *						
Excellent	568	27.1	48	46.1	616	28.0
Very good	898	42.8	41	39.5	939	42.7
Good	566	27.0	15	14.0	581	26.4
Fair or poor	63	3.0	0	0.0	64	2.9
Number of chronic conditions *						
0	1,038	49.5	71	68.1	1,109	50.4
1	592	28.3	19	17.7	610	27.8
≥ 2	465	22.2	15	14.2	481	21.8
Psychiatric disorders (SDQ)						
No	1,890	90.2	100	95.8	1,990	90.5
Yes	205	9.8	5	4.2	210	9.5
Two-parent household **						
Yes	1,824	87.1	91	86.6	1,915	87.0
No	271	12.9	14	13.4	285	13.0
Number of people in household						
Four or less	1,663	79.4	76	72.0	1,739	79.0
Five or more	432	20.6	29	28.0	461	21.0
Parents' educational level ***						
University	643	30.7	20	19.0	663	30.2
Secondary	643	30.7	42	40.0	685	31.1
Primary or less	808	38.6	43	41.0	851	38.7
Unknown	1	0.0	0	0.0	1	0.0
Parents' social class ***						
I+II	645	30.8	21	19.9	666	30.3
III	627	29.9	38	36.5	665	30.2
IV+V	810	38.7	44	41.4	854	38.8
Unknown	13	0.6	2	2.2	15	0.7
Parents' country of birth						
Both Spain	1,761	84.1	89	84.8	1,850	84.1
Other	334	15.9	16	15.2	350	15.9
Health coverage						
Only public	1,591	75.9	83	78.8	1,674	76.1
Double	504	24.1	22	21.2	526	23.9

SDQ: *Strengths and Difficulties Questionnaire*.

* $p < 0.05$;

** Living with both parents;

*** Maximum between both parents.

Table 2

Parents' scores on experiences with attributes of primary care. *2006 Catalan Health Interview Survey*.

PC attributes	Mean scores (95%CI)	Median scores (IQR)	% scoring < 3
First contact	3.40 (3.37-3.42)	3.50 (3.00-3.75)	25.9
Continuity of care	3.25 (3.21-3.29)	3.33 (2.83-4.00)	39.4
Coordination	3.43 (3.37-3.49)	4.00 (3.00-4.00)	30.8
Services available	3.21 (3.19-3.24)	3.25 (2.87-3.62)	37.9
Services received	3.03 (2.98-3.08)	3.25 (2.50-4.00)	49.3
Cultural competence	3.50 (3.47-3.54)	4.00 (3.00-4.00)	28.8

95%CI: 95% confidence interval; IQR: interquartile range.

Table 3

Prevalence and prevalence ratios (PR) of low scores in experiences with primary care attributes by sociodemographic, health status, and use of services variables. Bivariate analysis. *2006 Catalan Health Interview Survey*.

	First contact		Continuity of care		Coordination		Services available		Services received		Cultural competence	
	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)
Sex												
Boys	27.4	1.0	41.0	1.0	31.2	1.0	39.2	1.0	50.5	1.0	27.6	1.0
Girls	24.3	0.9 (0.8-1.1)	37.7	1.0 (0.9-1.1)	30.3	1.0 (0.8-1.2)	36.6	0.9 (0.8-1.1)	48.0	0.9 (0.9-1.1)	30.1	1.1 (0.9-1.2)
Age (years)												
0-5	26.3	1.0	38.9	1.0	26.8	1.0	41.0	1.0	39.7	1.0	28.6	1.0
6-11	25.9	0.9 (0.8-1.1)	39.7	1.0 (0.9-1.1)	30.2	1.1 (0.9-1.4)	36.5	0.9 (0.8-1.0)	48.7 *	1.2 (1.0-1.3)	29.5	1.0 (0.9-1.2)
12-14	25.3	1.0 (0.8-1.2)	39.4	1.1 (0.9-1.2)	36.5 *	1.3 (1.0-1.6)	36.1	0.9 (0.7-1.0)	65.3 *	1.6 (1.4-1.8)	27.8	1.0 (0.8-1.2)
Perceived health												
Excellent	25.0	1.0	40.0	1.0	37.3	1.0	34.9	1.0	47.9	1.0	26.9	1.0
Very good	25.1	1.0 (0.8-1.2)	37.6	0.9 (0.8-1.1)	32.4	0.9 (0.7-1.1)	39.0	1.1 (0.9-1.2)	50.3	1.0 (0.9-1.1)	28.0	1.0 (0.8-1.2)
Good	27.1 *	1.2 (1.0-1.4)	40.0	1.1 (0.9-1.2)	23.6 *	0.7 (0.6-0.9)	37.9	1.0 (0.9-1.2)	49.1	1.1 (0.9-1.2)	29.0	1.0 (0.9-1.2)
Fair or poor	34.1	1.3 (0.9-2.0)	50.1	1.2 (0.8-1.6)	26.6	0.9 (0.6-1.5)	49.8	1.2 (0.9-1.7)	50.2	1.1 (0.8-1.4)	55.3 *	1.9 (1.5-2.5)
Number of chronic conditions												
0	22.7	1.0	39.4	1.0	31.2	1.0	37.5	1.0	49.2	1.0	28.6	1.0
1	26.9 *	1.2 (1.0-1.4)	36.7	0.9 (0.8-1.1)	24.8	0.8 (0.7-1.1)	36.6	1.0 (0.9-1.1)	47.4	1.0 (0.9-1.1)	29.5	1.1 (0.9-1.2)
≥ 2	31.9 *	1.3 (1.1-1.6)	42.6	1.0 (0.9-1.2)	36.2 *	1.2 (1.0-1.4)	40.5	1.1 (0.9-1.3)	52.0 *	1.1 (1.0-1.2)	28.2	1.0 (0.9-1.2)
Psychiatric disorders (SDQ)												
No	25.1	1.0	38.7	1.0	30.1	1.0	38.0	1.0	48.9	1.0	28.5	1.0
Yes	32.8	1.1 (0.9-1.4)	45.2	1.1 (0.9-1.3)	35.3	1.1 (0.9-1.4)	37.2	1.1 (0.9-1.3)	53.3	1.1 (0.9-1.3)	31.4	1.2 (0.9-1.4)
Two-parent household												
Yes	26.1	1.0	38.7	1.0	31.2	1.0	38.7	1.0	49.1	1.0	28.5	1.0
No	24.4	0.9 (0.8-1.2)	43.6	1.1 (0.9-1.3)	27.8	0.8 (0.6-1.1)	32.4	0.9 (0.7-1.0)	51.0	1.0 (0.9-1.2)	31.0	1.1 (0.9-1.3)
Number of people in household												
Four or less	25.7	1.0	39.6	1.0	30.5	1.0	38.1	1.0	48.8	1.0	28.9	1.0
Five or more	26.8	1.1 (0.9-1.3)	38.4	1.0 (0.8-1.1)	32.3	1.0 (0.8-1.3)	37.2	1.0 (0.9-1.2)	51.3 *	1.1 (1.0-1.2)	28.3	0.9 (0.7-1.1)

(continues)

Table 3 (continued)

	First contact		Continuity of care		Coordination		Services available		Services received		Cultural competence	
	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)	%	PR (95%CI)
Educational level												
University	21.1	1.0	34.4	1.0	31.5	1.0	41.3	1.0	49.0	1.0	22.8	1.0
Secondary	27.1 *	1.3 (1.0-1.5)	40.6 *	1.1 (1.0-1.3)	28.6	0.9 (0.7-1.1)	34.1 *	0.8 (0.7-1.0)	49.2	1.0 (0.9-1.1)	30.0 *	1.2 (1.0-1.5)
Primary or less	28.8 *	1.3 (1.1-1.6)	42.3 *	1.2 (1.0-1.3)	32.0	1.0 (0.8-1.2)	38.3	0.9 (0.8-1.0)	49.7	1.0 (0.9-1.2)	32.6 *	1.4 (1.2-1.6)
Social class												
I+II	20.7	1.0	34.3	1.0	32.6	1.0	39.9	1.0	48.8	1.0	22.5	1.0
III	26.2	1.2 (0.9-1.4)	36.4	1.0 (0.9-1.2)	26.0	0.8 (0.6-1.0)	35.7	0.9 (0.7-1.0)	44.9	1.0 (0.9-1.1)	27.7	1.2 (1.0-1.4)
IV+V	29.6 *	1.4 (1.1-1.6)	45.5 *	1.3 (1.1-1.5)	33.2	1.0 (0.8-1.2)	38.1	0.9 (0.8-1.0)	53.6 *	1.1 (1.0-1.2)	34.4 *	1.4 (1.2-1.7)
Parents' country of birth												
Both Spain	25.2	1.0	37.9	1.0	30.0	1.0	36.7	1.0	47.7	1.0	27.2	1.0
Other	29.7 *	1.3 (1.0-1.5)	47.3 *	1.3 (1.1-1.4)	36.5	1.1 (0.9-1.5)	44.3 *	1.1 (1.0-1.3)	57.6 *	1.2 (1.1-1.3)	36.9 *	1.2 (1.0-1.4)
Health coverage												
Only public	28.3	1.0	43.2	1.0	32.4	1.0	38.1	1.0	52.8	1.0	31.3	1.0
Double	18.1 *	0.6 (0.5-0.8)	27.4 *	0.6 (0.5-0.7)	26.4	0.8 (0.7-1.0)	37.2	1.1 (0.9-1.2)	38.4 *	0.7 (0.7-0.8)	20.9 *	0.7 (0.6-0.8)
Visit general practitioner or pediatrician last year												
No	27.7	1.0	49.2	1.0	40.9	1.0	34.4	1.0	58.8	1	40.9	1
Yes	25.7	0.9 (0.7-1.2)	38.4 *	0.8 (0.7-0.9)	30.0 *	0.7 (0.5-0.9)	38.3	1.1 (0.9-1.3)	48.4 *	0.8 (0.7-0.9)	27.6 *	0.7 (0.5-0.8)
Visit specialist last year												
No	27.2	1.0	43.7	1.0	29.0	1.0	40.2	1.0	48.5	1	33.0	1
Yes	25.1	0.9 (0.8-1.0)	36.7 *	0.8 (0.7-0.9)	31.3	1.0 (0.8-1.3)	36.5	0.9 (0.8-1.1)	49.8	1.0 (0.9-1.1)	26.2 *	0.8 (0.7-1.0)
Visit emergency department last year												
No	23.6	1.0	36.7	1.0	32.5	1.0	36.9	1.0	49.9	1	27.2	1
Yes	29.3 *	1.2 (1.0-1.4)	43.2 *	1.2 (1.1-1.3)	28.8	0.9 (0.8-1.1)	39.4	1.0 (0.9-1.1)	48.5	1.0 (0.9-1.1)	31.2 *	1.2 (1.0-1.4)

95%CI: 95% confidence interval; PR: prevalence ratio; SDQ: *Strengths and Difficulties Questionnaire*.

* $p < 0.05$.

groups were more likely to report a worse experience with primary care, even after controlling by health status and use of services.

Almost all survey participants were able to identify a source of primary care and high scores in all attributes evaluated indicated the high quality of primary care in Spain at that time. Furthermore, the attribute of primary care offering accessible first contact received the highest score in Catalonia, whereas it was one of the worst rated domains in Quebec (Canada) [30] and several sites in Brazil [6,31,32,33]. Primary care reforms have been ongoing in all three countries for several decades. In Brazil, several studies compared the traditional model of care, which provides care in basic health units, with the reformed centers based on the Family Health Strategy, and showed important differences in PCAT domains. Although the results in accessibility differed between studies, they consistently demonstrated more adequate primary care services when those were provided by Family Health Strategy teams [34]. Scores were particularly good in the domains of longitudinality of care, coordination between levels, comprehensiveness, and family focused care [26,33,35]. These scores are not directly comparable, however, as different versions of the PCAT were used. Nevertheless, user experience suggests that Spain performed well in terms of providing accessible first contact.

It is highly relevant that the study did not reveal major differences in experiences with

Table 4

Sociodemographic, health status, and use of services variables associated with low scores in experiences with primary care attributes. Multivariate models adjusted by all variables in the table. *2006 Catalan Health Interview Survey*.

	First contact PR (95%CI)	Continuity of care PR (95%CI)	Coordination PR (95%CI)	Services available PR (95%CI)	Services received PR (95%CI)	Cultural competence PR (95%CI)
Sex						
Boys	1.00	1.00	1.00	1.00	1.00	1.00
Girls	0.93 (0.80-1.07)	0.97 (0.87-1.08)	1.02 (0.86-1.22)	0.95 (0.85-1.07)	0.97 (0.88-1.05)	1.07 (0.93-1.22)
Age (years)						
0-5	1.00	1.00	1.00	1.00	1.00	1.00
6-11	1.01 (0.84-1.22)	1.09 (0.95-1.26)	1.10 (0.87-1.39)	0.91 (0.78-1.05)	1.18 (1.04-1.33) *	1.08 (0.91-1.29)
12-14	1.06 (0.85-1.31)	1.14 (0.98-1.34)	1.21 (0.94-1.56)	0.89 (0.75-1.05)	1.60 (1.42-1.81) *	1.04 (0.85-1.27)
Number of chronic conditions						
0	1.00	1.00	1.00	1.00	1.00	1.00
1	1.20 (1.01-1.43) *	0.96 (0.84-1.09)	0.83 (0.67-1.04)	1.01 (0.87-1.16)	0.99 (0.89-1.10)	1.06 (0.90-1.23)
≥ 2	1.35 (1.13-1.62) *	1.04 (0.91-1.20)	1.18 (0.97-1.44)	1.11 (0.96-1.29)	1.08 (0.97-1.21)	1.04 (0.87-1.24)
Social class						
I+II	1.00	1.00	1.00	1.00	1.00	1.00
III	1.12 (0.92-1.38)	0.96 (0.82-1.12)	0.78 (0.62-0.97) *	0.88 (0.76-1.03)	0.93 (0.83-1.05)	1.14 (0.94-1.38)
IV+V	1.18 (0.98-1.44)	1.10 (0.95-1.26)	0.91 (0.74-1.11)	0.91 (0.78-1.05)	1.01 (0.90-1.12)	1.25 (1.05-1.50) *
Parents' country of birth						
Both Spain	1.00	1.00	1.00	1.00	1.00	1.00
Other	1.20 (1.00-1.45) *	1.17 (1.02-1.34) *	1.13 (0.84-1.44)	1.15 (0.99-1.34)	1.17 (1.04-1.30) *	1.12 (0.94-1.33)
Health coverage						
Only public	1.00	1.00	1.00	1.00	1.00	1.00
Double	0.69 (0.56-0.86) *	0.68 (0.57-0.80) *	0.83 (0.67-1.03)	1.05 (0.91-1.21)	0.78 (0.69-0.89) *	0.74 (0.61-0.91) *
Visit general practitioner or pediatritian last year						
No	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.92 (0.73-1.19)	0.82 (0.70-0.97) *	0.72 (0.55-0.94) *	1.04 (0.84-1.29)	0.91 (0.80-1.04)	0.69 (0.57-0.83) *
Visit specialist last year						
No	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.86 (0.73-1.01)	0.86 (0.76-0.97) *	1.01 (0.82-1.25)	0.97 (0.85-1.11)	0.98 (0.88-1.08)	0.88 (0.75-1.02)
Visit emergency department last year						
No	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.20 (1.03-1.39) *	1.24 (1.11-1.39) *	0.97 (0.81-1.15)	0.98 (0.86-1.10)	1.06 (0.97-1.16)	1.23 (1.07-1.41) *

95%CI: 95% confidence interval; PR: prevalence ratio.

* $p < 0.05$.

primary care when children had health needs; only parents of children with chronic conditions scored first contact-accessibility low. On analyzing the data in detail, we found that the low scores largely stemmed from the lack of phone access for obtaining advice (items C4 and C5).

Having visited a general practitioner or pediatrician was associated with a better rating of primary care in continuity of care and coordination, and having visiting a specialist was also associated with a better score in continuity of care. On the other hand, lower scores on the domains of first contact-accessibility, continuity of care and cultural competence were associated with a higher likelihood of using emergency services. Previous studies in Catalonia found that parents with a low educational level were more likely to use emergency medical services, as were parents of children with additional, private health coverage [16]. The potentially inappropriate use of emer-

gency services was linked to the level of knowledge of the health services available and working hours [36], in particular among immigrants with precarious work conditions [37], A study using data from the 2007-2009 *Medical Expenditure Panel Survey* in US, showed how one element of communication like patient-provider language concordance, was associated with fewer nonemergent visits to emergency department [38].

The differences by sociodemographic characteristics after controlling for health and use of services should be underlined as it raises concerns about social inequalities. It is noteworthy that those in disadvantaged social classes and foreign parents were more likely to give lower scores on the attributes of first contact, continuity of care, services received, and cultural competence, thereby identifying characteristics of primary care that require improvement. A series of barriers might lead to a deterioration in the experiences of disadvantaged social groups with primary care, as observed on other indicators of quality of care [39]. On the other hand, the same attributes of primary care scored well among users whose children had double health coverage, a characteristic which indicates a privileged part of the population. A similar finding was reported in Argentina with data from a sample in which approximately 50% of the children had double coverage [40]. This may be because they can choose between at least two different options when deciding which pediatrician or other health care professional to visit, and they presumably choose the one they are more satisfied with. Our data (not shown) indicated that they more frequently chose to visit pediatricians provided by their private health care insurance plan.

It should be taken into account that recently, as a response to the global economic crisis, European countries in general, and the Spanish government in particular, have tended to restrict public health expenditure. Recent legislative changes have excluded the uninsured from the right to health care, a move which directly affects immigrants and the unemployed [41]. In this way access to healthcare services is reduced and inequities in health may become more marked. It will be important to determine whether the situation worsens in the future or whether primary care is reinforced, as proposed in Spain [42].

The most important weakness of our study was the use of a subset of the original PCAT items selected specifically for use in the *2006 Catalan Health Interview Survey*, rather than using the complete short version. However, it was not possible to use the complete version in a health survey. The use of a more limited pool of items implies reduced content validity when compared to the conceptual model proposed by the instrument's authors, and also limits the possibility of comparing with other countries. Other, shorter versions of PCAT are now available which allow for the computation of a global index of primary care, covering all of the domains proposed by Starfield and selected using modern statistical methods [43]. Thus, any comparison of our results with other studies should be treated with caution. Nevertheless, the inclusion of these domains and items at least allowed us to gather relevant data on perceptions of primary care services from a representative sample of inhabitants.

Another limitation is the cross sectional design of the study, which rules out the possibility of making causal assumptions. Thus, we cannot confirm whether good access and continuity of care led to a greater use of general practitioners and a lower use of emergency services.

Based on studies of representativeness in similar types of health surveys in children, selection bias could affect results if those who refused to participate had poorer health [44] and if morbidity is associated with worse experience with access to primary care, as was the case in the present analysis. However, refusals to participate in the current survey were low and refusals were replaced with cases selected by random, from individuals of a similar age and the same sex, living in the same area. No additional information was gathered from refusals to characterize their health or use of services so it was not possible to analyze the possibility of bias in greater depth. Moreover, health surveys employing multistage random sampling of communities and households are likely to achieve more representative and better balanced samples in terms of age, sex, and place of residence (urban-rural) samples than institutional samples or studies of health services in which users are interviewed in waiting rooms [44].

To the best of our knowledge, relatively few studies have examined user perceptions of primary care services from a population perspective while at the same time taking into account several domains considered fundamental to primary care performance. This study provides information about the quality of primary care in a developed country with a National Health Service which provided almost universal coverage and with a relatively strong primary care service in 2006 [45]. The attributes of primary care studied here were generally evaluated positively, but sociodemographic differences indicate the existence of inequalities in service quality and provision. There was also some evidence to suggest that inappropriate use of emergency services may be associated with poor ratings of

primary care services among some groups. The study therefore provides relevant information for policy makers, as it suggests that improvement of aspects of primary care services may reduce both inappropriate use of emergency services and social inequalities in this area. Finally, socio-demographic differences indicate the existence of inequalities in service quality and provision, which could increase given the current economic and political crisis.

Resumo

Este estudo avaliou as experiências com a atenção primária à saúde para crianças e adolescentes, considerando níveis de saúde, características sociodemográficas e o uso de serviços de saúde. A Enquete de Saúde de Catalunha de 2006 *incluiu uma amostra representativa da população de 0 a 14 anos (n = 2.200). Pessoas adultas informaram suas experiências com a atenção primária à saúde de seus filhos com uma seleção de 17 itens do* Primary Care Assessment Tool. *Estimaram-se razões de prevalência (RP) de baixa pontuação em seis funções da atenção primária à saúde mediante modelos multivariados. A declaração de doenças crônicas se associou à baixa pontuação no primeiro contato-acessibilidade. Os pais imigrantes declararam pior experiência com várias funções da atenção primária à saúde. As pontuações no primeiro contato-acessibilidade, continuidade da atenção e competência cultural foram mais altas quando as crianças tinham cobertura sanitária dupla e mais baixas quando tinham visitado os serviços de emergência. Melhorias em algumas funções da atenção primária à saúde poderiam reduzir o uso de serviços de urgência e iniquidade.*

Atenção Primária à Saúde; Serviços de Saúde; Criança; Adolescente

Contributors

S. Berra designed the study, made descriptive analysis, interpreted results, drafted the first version of the manuscript, and approved the final version to be published. M. Rodríguez-Sanz designed the study, made the statistical analysis, interpreted results, reviewed critically the draft and approved the final version to be published. L. Rajmil, M. I. Pasarín and C. Borrell designed the study, interpreted results, reviewed critically the draft, and approved the final version to be published.

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