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Drug use and associated factors in children living in poor areas

ABSTRACT

OBJECTIVE: To describe drug use profile in children living in poor areas and associated factors.

METHODS: Population-based, cross-sectional study, including 1,382 children aged between four and 11 years. These children were selected by random sampling of 24 micro-areas, representative of the poorest segments of the population living in the city of Salvador, Northeastern Brazil, in 2006. The dependent variable was drug use in the 15 days preceding the surveys. A total of three groups of explanatory variables were considered: socioeconomic variables, child health status, and use of health services. Adjusted analysis used Poisson regression, following a hierarchical conceptual model.

RESULTS: Drug use prevalence in children was 48%. Female children showed higher drug use prevalence than males, 50.9% and 45.4%, respectively (p=0.004). Drug use prevalence decreased significantly with age (p<0.001) in both sexes. Most used pharmacological groups were: analgesics/antipyretics (25.5%), systemic antibiotics (6.5%), and anti-cough /expectorant drugs (6.2%). In the multivariate analysis, factors determining greater drug use were: age (four to five, six, seven to eight years); female sex; white mother; poorer health perception; interruption of activities due to health problems and health care, whether ill or not, in the last 15 days; drug spending in the last month; and medical visits in the last three months.

CONCLUSIONS: Drug use prevalence in the poor children studied was below that observed in other population-based studies in Brazil, yet similar to that of adults. The identification of groups most subject to excessive drug use may serve as the basis for strategies to promote their rational use.

DESCRIPTORS: Child. Drug Utilization. Socioeconomic Factors. Health Inequalities. Cross-Sectional Studies. Pharmacoepidemiology.

INTRODUCTION

In developing countries, children are the main health service users and the first to suffer the impact of changes in the health-disease process in the community[9] and their pattern of illness is reflected on drug use. This use, in its turn, can be considered an indirect indicator of health service quality and is expected to contribute to service or treatment effectiveness.[17]

In the case of children, rational drug use must take into consideration the specificities of age sub-groups and the peculiarities of their development. The practice of drug use in children is mostly based on extrapolations and adaptations of use in adults, information obtained from rare observational studies, consensus from experts and clinical assays in this population.[7,23,24]

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Although necessary, studies on the prevalence of drug use in children are yet scarce.[5,8,14,15,25] In an extensive investigation conducted in England with children aged between zero and 7.5 years of age, Headley & Northstone[14] found out that three quarters of the sample had used medicinal products before eight weeks of age.

In the city of Pelotas, Southern Brazil, Béria et al,[5] studied 4,746 children aged from two to six years and observed a drug use prevalence of 56% in the period of 15 days preceding the interview. In municipal day care centers of the city of São Paulo, Southeastern Brazil, Bricks & Leoni[8] analyzed 1,382 children aged between two and seven years and observed a drug use prevalence of 37% in the last two months. In Pelotas, Weiderpass et al[25] studied 655 children in their first and third months of life, with drug use prevalences of 65% and 69%, respectively, in the two weeks preceding the interviews conducted with the mothers. All these three studies found an association between drug use and children sex and age, maternal level of education, firstborns and use of health services.[5,8,25]

The present study aimed to describe the drug use profile of children living in poor areas and its associated factors.

METHODS

A cross-sectional, population-based study in a cohort of children was performed in the urban area of the city of Salvador, Northeastern Brazil, between February and May 2006. This study was part of the more extensive research project, entitled "Social Changes, Asthma and Allergy in Latin America" (SCAALA), on risk factors for asthma and allergy in children aged between four and 11 years in Brazil, whose characteristics were described elsewhere.[3]

The study population was selected by a random sample of 24 micro-areas, representative of the poorest regions in Salvador where the population lives. The sample of children was obtained from two epidemiological surveys. The first one was conducted with children aged between zero and four years of age, from 2000 to 2002, and aimed to assess the impact of the sanitation program on children's health conditions in Salvador.[25] This cohort was investigated in a second epidemiological survey of risk factors for asthma and allergy, conducted in 2005, which characterized the SCAALA project[3] study population. Thus, during the period of home interviews in 2006, 1,382 children aged between four and 11 years participated in the study, comprising 95.6% of the initial cohort of the SCAALA project (1,445 children).[3] A total of 63 children were excluded from the analysis: 26 could not be located due to change of address and 37 did not have information about the mothers.

The instrument used for data collection was a structured questionnaire, including questions about drug use, maternal and child sociodemographic characteristics, child health status and use of health services.

Questionnaires were applied using home interviews, conducted with the mothers or those responsible for the children. In the absence of a responsible adult, interviewers returned at least two times to the homes. When these attempts failed, the visit was made by the field supervisor. During application of the questionnaire on information about drug use in the last 15 days, mothers or those responsible were requested to show the medical prescription and the package of the drugs used, when available, in order to note down the product characteristics correctly. Drugs whose prescriptions and packages were not available at the moment of the interview at home, but which were reported by the mothers as having been used, were also considered.

Drug use in the 15 days preceding the interview was the dependent variable. This outcome was defined by the following question: "Did the child use any medication in the last 15 days? Give an example. Drugs for fevers, headaches, vomit, diarrhea and infection. Drugs such as vitamins and tonics (*Attention: exclude homemade remedies/teas, magistral formulas and phytotherapeutic agents*)". Drugs were broken down into their active principles and classified according to the Anatomical Therapeutic Chemical Index (ATC/DDD Index), developed by the World Health Organization Collaborating Center for Drug Statistics Methodology.[a]

Independent variables were categorized into three levels. The first level was comprised of socioeconomic variables: maternal ethnicity (white, black), maternal level of education (zero to four, five to eight, nine or more years of study), maternal occupation related to the practice of paid activities (yes: civil servant; military professional; business owner; self-employed professional; worker in retail, factory or services; retired and pension plan holder/ no: unemployed; housewife; student), monthly family income (up to one, from one to two, and from two to five minimum wages – MW), maternal age (15 to 29, 30 to 39, 40 to 79 years). The Brazilian minimum wage at the time of this study was R$ 300.00 per month (approximately US$ 160.00).

The second level was comprised of child health status variables: health perception reported by the mother (excellent/very good, good, poor/very poor), diseases or chronic conditions reported by the mother to investigate the medical diagnosis history (asthma,

[a] World Health Organization. WHO Collaborating Centre for Drug Statistics Methodology [internet]. Oslo; 2001[cited 2008 May 01]. Available from: http://www.whocc.no

pulmonary tuberculosis, pneumonia, hepatitis, arterial hypertension, urinary infection, chronic renal disease), interruption of activities/school absence due to health problems in the last 15 days (yes, no).

The third level was comprised of health service use variables: medical consultations in the last three months (none, one, two or more); pharmaceutical consultations in the last three months (yes, no); hospitalizations in the last 12 months (yes, no); private health plan (yes, no); child received health care in the last 15 days, whether ill or not (yes, no); and drug spending in the last month (yes, no). The child age (four to five, six, seven to eight, nine to 11 years) and sex (male and female) demographic variables were considered potential confounding factors.

In data analysis, drug use prevalence according to sex and age group was estimated from the proportion of children who had taken at least one drug in the last 15 days, divided by the total number of children per sex in each age group.

In the bivariate analysis, the chi-square test was used to compare proportions (Mantel-Haentzel), while the linear trend test was used for ordinal variables. Multiple logistic regression analysis was performed, using the robust Poisson regression method for the "drug use" dependent variable: (0) did not use drugs and (1) used drugs. This analysis followed the proposed hierarchical conceptual model. On all hierarchical levels in the adjusted analysis, the sex and age variables were included, which remained in the model for the adjustment of variables of all hierarchical levels, even when they were not significant. On the subsequent levels, variables that continued to be associated with drug use, after adjustment for confounding variables in the same block and those hierarchically higher, remained in the model.

All variables that were associated with the dependent variable, with a level of statistical significance $p<0.20$ to control confounding factors, remained in the regression model. Variables associated with drug use on a level $p<0.05$ remained in the final model. Sampling design effect was considered in all analyses, using the set of svy commands, specific for the analysis of surveys based on Stata 9.0 statistical software complex samples.

This study was approved by the *Comitê de Ética do Instituto de Saúde Coletiva da Universidade Federal da Bahia* (Bahia Federal University Institute of Collective Health Ethics Committee). Mothers or adults responsible for the children answered the questionnaire after signing an informed consent form.

RESULTS

Of all the 1,382 children studied, 663 (48%) had taken drugs in the last 15 days, according to what mothers reported. The number of drugs (occurrence of reports) taken was 1,030, totaling 269 different commercial names for 113 active principles. Of all the 663 children, 63% had used one drug, 24% had used two, and 13% three or more. Of all the 1,030 drugs, 467 (45.3%) were given to children based on their mothers' decision; 439 (42.6%) were recommended by doctors, 82 (8.0%) by relatives, friends and neighbors and 25 (2.4%) by pharmacists; ten (1.0%) were due to influence of commercial advertisements (radio, television, magazines) and four (0.4%) whose source the mother could not inform.

The majority of drugs (67%) were acquired in private pharmaceutical establishments; 14% in health clinic drugstores; 10% the mother had at home; 4% were free samples received from doctors, 3% from hospital/outpatient clinic drugstores and 2% were drugs partially subsidized by a special program. Of all the active principles, only 58.4% were included in the *Relação Nacional de Medicamentos Essenciais* (RENAME – Brazilian Inventory of Essential Drugs, 2007).[a] Of all the products, 70 (26%) were inadequate for use in children, including anti-cough drugs, decongestants, iodide syrups, expectorants and mucolytics.

Table 1 shows that female children have a drug use prevalence which is always higher than that of males, 50.9% and 45.4%, respectively ($p=0.004$). Drug use prevalence significantly decreased with age ($p<0.001$) in both sexes; in the extreme age groups in which the study population was characterized, 4-5 years and 9-11 years, prevalence decreased from 60.9% to 43.3% among females ($p=0.003$) and from 55.1% to 35.6% among males ($p<0.001$).

The most frequently reasons for drug use were as follows: fever (28.8%), cough (8.3%), flu/cold (7.9%), sore throat (7.2%), headache (7.0%) and tiredness (6.2%). According to the first level of ATC classification, the three main anatomical groups most frequently used were: drugs that function in the central nervous system (26.4%), drugs that function in the respiratory system (15.1%), and anti-infective drugs for systemic use (6.6%). Table 2 shows the prevalence of use of pharmacological groups and active principles.

In the bivariate analysis, the prevalence and factors associated with drug use were higher and statistically significant in children aged 4-5 years (57.9%), female sex (50.9%), those whose mothers had a professional activity (52.2%), poor/very poor child health perception, reported by the mother (79.7%), presence of

[a] Ministério da Saúde. Departamento de Assistência Farmacêutica e Insumos Estratégicos. Relação nacional de medicamentos. 4. ed. Brasília; 2007.

Table 1. Sample studied and child drug use prevalence (%), according to sex and age group. City of Salvador, Northeastern Brazil, 2006.

Age group (years)	Population			Drug use prevalence					
	Female	Male	Total	Female		Male		Total	
	n	n	n	n	%	n	%	n	%
4-5	128	138	266	78	60.9	76	55.1	154	57.9
6	146	165	311	76	52.1	79	47.9	155	49.8
7-8	222	239	461	110	49.5	110	46.0	220	47.7
9-11	150	194	344	65	43.3	69	35.6*	134	39.0
Total	646	736	1382	329	50.9	334	45.4	663	48.0
P trend (age)				0.003		<0.001		<0.001	
P (sex)						0.004			

*p<0,05

chronic diseases/conditions reported by the mother (53.9%), and those who interrupted their activities or missed school due to health problems in the last 15 days (84.7%) (Table 3). In terms of use of health services, drug use was higher in children who had two or more medical consultations in the last three months (63.9%); those who received health care, whether ill or not, in the last 15 days (69.8%); those who had been hospitalized in the last 12 months (56.5%); and those who had spent money on drugs in the last months (77.2%)

In all multiple logistic regression stages (Table 3), the hierarchical model variables were adjusted for child age and sex. In the first stage, the socioeconomic variable – black mothers – after adjustment for child age and sex, maintained the bivariate analysis findings, except for maternal occupation, which maintained a positive association, though not statistically significant. Ethnicity, monthly family income (2-5 MW) and maternal occupation remained for the subsequent analysis (p<0.20).

In the second stage, the effect of child health status was adjusted from age, sex and socioeconomic variables (ethnicity, monthly family income between 2-5 MW and maternal occupation). Children who missed school in the last 15 days due to health problems and those who had the poorest health perception reported by the mother maintained the statistical significance observed in the bivariate analysis, even though both lost strength of association.

"Health perception reported by the mother", "chronic disease" and "interruption of activities/school absence due to health problems in the last 15 days" remained in the third stage. In the last stage, "medical consultations in the last three months", "children who received health care, whether ill or not" and "mothers who reported drug spending in the last months" continued to be positively and significantly associated, according to bivariate analysis.

All variables mentioned lost strength of association. "Hospitalization of children in the last 12 months" continued to be positively associated, after adjustment by possible confounding factors, although without statistical significance.

Table 4 shows the final results of multiple logistic regression analysis of factors associated with drug use in children. After adjusted analysis, the following were the associated factors: age (4-5, six and 7-8 years); female sex; black mothers; poorer health perception reported by the mother; interruption of activities/school absence due to health problems; health care, whether ill or not; drug spending; and medical consultations in the last three months.

DISCUSSION

Drug use prevalence in children aged from four to 11 years, estimated in the present study, was 48%, based on information about a 15-day recall period provided by the mother. Some sample characteristics need to be considered when compared to literature data, once socioeconomic conditions are known drug use determinants.[2,6] Among these conditions, the fact that the population studied lives in a major city of Northeast Brazil should be considered, as this city is little heterogeneous in economic terms, not including society's most privileged classes as regards income, education and health service access. As this study concerns a household survey, it was possible to collect detailed information such as the checking of prescriptions and drugs/drug packages that have remained, as well as to return to a home to complement information, guaranteeing data quality.

Drug use prevalence in the population studied was above the 37% found by similar research, performed in 15 public day care centers in the city of São Paulo,[8] and above the 25.4% drug use prevalence in the last two days of a study performed in Spain with children aged

Table 2. Drug use prevalence per pharmacological classes and active principles in children. City of Salvador, Northeastern Brazil, 2006. (N=1,382)

Pharmacological classes Active principles	ATC	Total	
		n	(%)
Analgesics/antipyretics	N02	353	25.5
Dipyrone	N02BB02	242	17.5
Paracetamol	N02BE01	101	7.3
Acetylsalicylic acid	N02BA01	43	3.1
Antibacterials for systemic use	J01	90	6.5
Amoxicillin	J01CA04	43	3.1
Sulfamethoxazole + trimethoprim	J01EE01	30	2.2
Cefalexine	J01DA01	6	0.4
Others		17	1.2
Cough and cold preparations/Expectorants/Mucolytics	R05	86	6.2
Ambroxol	R05CB06	28	2.0
Guaiafenesin	R05CA03	23	1.7
Carbocisteine	R05CB03	20	1.4
Others		18	1.3
Drugs for obstructive airway diseases	R03	70	5.1
Salbutamol	R03CC02	49	3.5
Budesonide	R03BA02	11	0.8
Fenoterol	R03CC02	9	0.7
Others		3	0.2
Antihistamines for systemic use	R06	67	4.8
Dexchlorpheniramine	R06AB02	28	2.0
Cyproheptadine	R06AX02	19	1.4
Ketotifen	R06AX17	8	0.6
Others		15	1.1
Vitamins	A11	64	4.6
Ascorbic acid	A11GA01	31	2.2
Multivitamins with minerals	A11AA03	21	1.5
Others		14	1.0
Antiinflammatory and antirheumatic drugs	M01	48	3.5
Diclofenac	M01AB05	35	2.5
Nimesulide	M01AX17	8	0.6
Others		5	0.4
Anthelmintics	P02	45	3.3
Mebendazole	P02CA01	27	2.0
Albendazole	P02CA03	9	0.7
Others		10	0.7
Antianemic preparations	B03	28	2.0
Ferrous sulfate with folic acid	B03AD03	15	1.1
Ferrous sulfate	B03AA07	11	0.8
Others		2	0.1
Corticosteroids for systemic use	H02	14	1.0
Prednisolone	H02AB06	9	0.7
Prednisone	H02AB07	3	0.2
Others		2	0.1
Total number of children treated		663	48.0

ATC: Anatomical Therapeutic Chemical System

Table 3. Prevalence, crude and adjusted prevalence ratios of drug use in the last 15 days, following a hierarchical conceptual model in children. City of Salvador, Northeastern Brazil, 2006.

Variable	n	%	Crude PR (95% CI)	Adjusted PR (95% CI)[a]
Demographic				
Age (years)				
4-5	266	57.9	1.27 (1.14;1.41)	1.48 (1.25;1.75)
6	311	49.8	1.05 (0.92;1.20)	1.27 (1.07;1.52)
7-8	461	47.7	0.99 (0.89;1.11)	1.22 (1.02;1.46)
9-11	344	38.9	1	1
Sex				
Male	736	45.4	1	1
Female	646	50.9	1.12 (1.00;1.25)	1.11 (1.00;1.24)
Socioeconomic (level 1)				
Maternal ethnicity				
White	138	54.3	1	1
Black	1244	47.3	0.87 (0.76;0.99)	0.85 (0.75;0.98)[b]
Monthly family income				
< 1 MW	723	46.3	1	1
1-2 MW	414	48.3	1.01 (0.88;1.16)	1.04 (0.91;1.19)
2-5 MW	245	52.2	1.11 (0.94;1.31)	1.11 (0.95;1.29)[b]
Maternal level of education (years of study)				
0-4	326	44.8	1	1
5-8	435	47.8	0.99 (0.81;1.21)	1.07 (0.85;1.34)
9 or more	621	49.8	1.07 (0.92;1.25)	1.05 (0.91;1.20)
Maternal occupation				
No	884	45.6	1	1
Yes	498	52.2	1.15 (1.00;1.31)	1.13 (0.98;1.32)[b]
Maternal age (years)				
15-29	561	48.8	1.03 (0.92;1.16)	1.05 (0.86;1.29)
30-39	607	49.1	1.04 (0.94;1.16)	1.10 (0.93;1.31)
40-79	214	42.5	1	1
Health status (level 2)				
Health perception reported by the mother				
Excellent/very good	219	35.2	1	1
Good	961	44.2	0.78 (0.69;0.88)	1.17 (0.95;1.45)[b]
Poor/very poor	202	79.7	1.87 (1.67;2.10)	1.51 (1.17;1.94)[b]
Chronic diseases/conditions				
No	924	45.0	1	1
Yes	458	53.9	1.20 (1.07;1.34)	1.10 (0.98;1.23)[b]
Interruption of activities/school absence due to health problems in the last 15 days				
No	1074	37.4	1	1
Yes	308	84.7	2.26 (2.05;2.50)	1.98 (1.78;2.21)[b]
Uses of health services (level 3)				
Number of medical consultations in the last 3 months				
None	677	36.9	1	1
One	409	54.8	1.21 (1.07;1.37)	1.19 (1.06;1.33)
Two or more	296	63.9	1.46 (1.34;1.60)	1.17 (1.04;1.31)

To be continued

Table 3 Continuation

Variable	n	%	Crude PR (95% CI)	Adjusted PR (95% CI)[a]
Child received health care, whether ill or not, in the last 15 days				
No	1080	41.9	1	1
Yes	301	69.8	1.66 (1.48;1.87)	1.12 (1.01;1.24)
Pharmaceutical consultations in the last 3 months				
No	1308	47.4	1	1
Yes	74	58.1	1.23 (0.98;1.54)	1.00 (0.82;1.21)
Hospitalization in the last 12 months				
No	1251	47.1	1	1
Yes	131	56.5	1.20 (1.01;1.42)	1.10 (0.92;1.31)
Health plan				
No	1190	47.4	1	1
Yes	192	51.6	1.09 (0.90;1.32)	1.00 (0.85;1.18)
Drug spending in the last month				
No	912	32.9	1	1
Yes	470	77.2	2.35 (2.08;2.65)	1.86 (1.59;2.16)

[a] Prevalence ratios adjusted for confounding factors of each level, those hierarchically higher and potential confounding factors (child age and sex).
[b] Variables with level of significance p<20% remained in the model to control confounding.

younger than 15 years.[20] However, the drug use prevalence found in this study was below those identified by Béria et al (54%)[5] between 35 and 53 months of life and Weiderpass et al (69%)[26] in the first and third months of life in Brazilian studies. In addition, it was below the 60% prevalence of use of at least one drug in the last 12 months in children aged between zero and 16 years, in Holland.[22] These studies included children younger than four years,[5,8,20,22,26] three were based on information reported by the mothers,[5,8,26] four were population-based studies[5,8,20,26] and the recall period varied from two days to 12 months, hindering comparison with the results from this study.

In the present study, findings related to age were in agreement with the literature in terms of the progressive decrease in drug use prevalence with the increase in age group.[5,8,11,12] In addition, drug use decreased with age, being higher among children aged between four and five years, compared to the remaining age groups.

In terms of sex, the present study revealed that drug use among females was higher than among male children, in all age groups. This finding is similar to that found in adults, among whom drug use differences between sexes have been explained by sociocultural and biological aspects that would cause more illness and self-care, and higher search for health services and exposure to drugs in women.[2,6,11,12] However, some of these factors, such as disorders associated with reproductive life and the family health caregiver's social role, would not apply to female children. On the other hand, some studies have shown higher general drug use prevalence in male children, suggesting the presence of specific cultural or biological aspects in the population focused by the present study.[8,16]

According to what was informed by mothers, 50.2% of drugs used had been recommended by doctors and 45.7% had been decided by the mothers themselves, of which 67% were acquired in retail drugstores and 14% were provided by *Sistema Único de Saúde* units (SUS – National Health System). These data point to the difficulty in accessing health units and the low drug coverage in Salvador.

All the 269 drugs with different commercial names used by children corresponded to 113 distinct active principles. Of these active principles, only 58.4% were included in the RENAME. Of all the products, 70 (26%) were inadequate for child use, reflecting the limited impact of ongoing pharmaceutical care policies on drug use cultural habits in Brazil.

The ten most used drugs comprised 54% of the total, with a predominance of analgesics/antipyretics, decongestants, iodide syrups, expectorants and mucolytics. In Sweden, where there is a strict control over drug commercialization, the ten most used drugs comprised 70% of the total, in a study performed with children.[1]

Analgesics/antipyretics are frequently used in children, probably due to the fact that fever is a common manifestation in childhood, in addition to the use of this class of over-the-counter drugs becoming ordinary. On the other hand, the use of systemic antibiotics for cough and flu/cold is also frequent, although rarely

Table 4. Final model of the multivariate analysis of factors associated with child drug use. City of Salvador, Northeastern Brazil, 2006.

Variable	Adjusted PR (95% CI)
Age (years)	
4-5	1.48 (1.25;1.75)
6	1.27 (1.07;1.52)
7-8	1.22 (1.02;1.46)
Female child	1.11 (1.00;1.24)
Black mother	0.85 (0.75;0.98)
Poor/very poor health perception referred by the mother	1.51 (1.17;1.94)
Interruption of activities due to health problems in the last two weeks	1.98 (1.78;2.21)
One medical consultation in the last 3 months	1.19 (1.06;1.33)
Two or more medical consultations in the last 3 months	1.17 (1.04;1.31)
Child received health care, whether ill or not, in the last 15 days	1.12 (1.01;1.24)
Drug spending in the last month	1.86 (1.59;2.16)

justifiable, given the viral etiology of the majority of these infections. However, the use of decongestants, expectorants and mucolytics is less and less recommended, once they expose children to risks without offering an equivalent benefit.[18,19]

After adjustment, there was no association between overall drug use and socioeconomic variables, except for maternal ethnicity. In terms of ethnicity, children of black mothers used 13% (PR = 0.87) less drugs than children of white mothers. When controlling for socioeconomic variables and health status, this value rose to 15% (PR = 0.85). This result may indicate that there are ethnic differences in this study which are not explained by socioeconomic variables. In this case, these variables are probably associated with use of services and access to drugs. A study performed in the United States found ethnic and racial differences in the use of drugs prescribed for children and which remained in the multivariate analysis adjusted for health status and use of services.[13]

As regards maternal level of education, researchers found higher drug use prevalences in children whose mothers had nine of more years of study. However, level of education was not significant in the crude analysis or that adjusted for confounding variables. Mothers with higher level of education would have greater awareness of drug use in their children because they had more access to information and health services. In addition, Sanz et al[21] did not find differences in level of education in Spain.

Studies performed in developed and developing countries have revealed that drug use is associated with the presence of chronic diseases or conditions.[2,6,11,12] In the present study, the presence of chronic diseases/conditions was positively and significantly associated with drug use in the crude analysis, but not statistically significant in the adjusted analysis. Health status indicators (worse health perception reported by the mother and interruption of activities/school absence due to health problems in the last two weeks) showed positive and significant association in the non-adjusted model and after adjustment for confounding variables.

The present study showed association between a higher number of medical consultations and drug use, findings that are in agreement with those of other studies in Brazil.[2,5,6,26] Medical consultations converted into prescriptions may indicate deficiencies in the professional qualification system, difficulties and limitations related to conditions for adequate professional practice.[26]

Despite the use of logistic regression in cross-sectional studies with binary outcomes, Poisson regression was selected as it directly estimates prevalence ratios. It is known that the use of odds ratio as risk estimate for outcomes with high prevalence results in overestimation, thus hindering the interpretation of results.[4]

Some limitations to the present study must be considered. The household survey is subject to bias from interviewers and interviewees, which cannot always be controlled. The survey of reasons for drug use according to medical recommendation was not conducted due to operational difficulties, and only information reported by the mothers was used. Moreover, the period when data collection was performed, from February to May 2006, coincided with the local rainy season, when there was an increase in the incidence of viral diseases and dengue cases, which may have contributed to greater use of certain classes of drugs, such as analgesics, antipyretics, anti-cough drugs, expectorants, mucolytics and anti-asthma drugs. In the present study, some procedures were adopted to minimize memory bias, including the 15-day recall period to assess drug use in children, data collection standardization, and request for package and/or prescription of drugs used.

In conclusion, children aged between four and 11 years are usually in a stage of life when health problems justifying drug use are not frequent. Drug use, in addition to being an important indicator of health problems, also reflects social inequalities, health system deficiencies and qualities, the country's drug regulation, the medical education, cultural habits and the pharmaceutical market composition, among other factors. Results from the present study point to deficiencies in the SUS coverage in the city of Salvador, as well as inadequate population access to drugs in health units, particularly among poorer individuals. In turn, the profile and factors associated with drug use indicate which groups would be more subject to excessive use, in addition to aspects that are subject to intervention, thus contributing to rational drug use promotion strategies.

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