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Medication use among quilombola and non-quilombola rural adolescents in the countryside of Bahia, Brazil

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Abstract *This study aims to describe the use of prescribed and non-prescribed medications and associated factors among adolescents living in rural, quilombolas and non-quilombolas communities in the interior of Bahia, Brazil. This is a population-based survey with 390 adolescents between 10 and 19 years old in 2015. Prevalence and odds ratio for use of prescribed and non-prescribed medication, and multiple analysis was conducted by Multinomial Logistic Regression. Among the interviewees, 13.6% used only prescribed medications and 14.4% only used non-prescribed medications. Quilombolas demonstrated a greater diversity of pharmaceutical specialties used. The low prevalence of medication use in both groups of adolescents suggests less access to these products. Despite this, it was observed the irrational use of medication, mainly as self-medication. Quilombola adolescents, although they belong to the same area of coverage of other communities, presented different associated factors when compared to the non-quilombola group: the presence of toothache in the last 6 months and have had a regular source of care increased the use of prescribed medications.*
Key words *Drug utilization, Adolescent, Rural areas, Pharmacoepidemiology*

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Background

The medications are an important strategic source of health action, used to treat, cure or prevent numerous clinical conditions. Furthermore, they can be an important factor in the construction and modification of social dynamics, representing an invaluable technology that directly interferes with public health spending[1].

Despite the benefit of treating many medical conditions, medications can also carry the risk of unwanted effects when used irrationally[2]. When non-prescribed by health professionals, their use is characterized as self-medication[3].

There are several factors that can influence the prescribed or non-prescribed medication use: morbidities, the social context, lifestyle, and social and demographic factors[4–7]. In addition, medication use can be observed in all age groups, including those considered healthier, such as adolescents[8-10].

Adolescence is a phase characterized by the development of individual cognitive judgment and aggregation of values that can be carried into adulthood[11]. These values may be associated with the characteristics in which these individuals are inserted[12]. Therefore, in rural regions there are less offer of services, including physical, social and mental well-being, which can have an effect on the health of these adolescents[13-16].

Brazilian rural areas remains precarious when compared to the urban areas. Several vulnerability are present, which determine the health situation of the populations, such as lack of basic sanitation, irregular water supply, less access to health and education services, unemployment and food insecurity[17].

Among rural populations, we highlight a considerably vulnerable community: the *quilombola*. These populations formed unique communities, constituted initially as a space of black resistance to the slave system, growing as a social movement of political and cultural resistance against oppression and racial discrimination[18,19].

As residents of *quilombola* communities, the adolescents are exposed to various access barriers and limitations to health services, which may influence the profile of prescribed and non-prescribed medication use[20,21].

Considering the vulnerability of this population and the lack of studies, this study aimed to describe the use of prescribed and non-prescribed medication and associated factors among rural *quilombola* and *non-quilombola* adolescents in the countryside of Bahia, Brazil.

Methods

This study is part of the project "ADOLESCER: Rural Adolescent Health and its conditioning factors", carried out in rural communities in the municipality of Vitoria da Conquista, Bahia. It was a population-based cross-sectional household survey[22].

The research project was approved by the Ethics Committee of the Universidade Federal da Bahia – Campus Anísio Teixeira. Adolescents aged 18 years or older signed the Informed Consent Form. All adolescents under 18 years of age signed the Informed Assent Form and their legal guardians signed the Informed Consent Form, agreeing to participate in the study. The presence of severe mental disorders with cognitive impairment was used as an exclusion criterion.

The sample universe was estimated in 811 adolescents, obtained through the registration of families living in the areas covered by the Family Health Teams. The adolescents were divided into two strata: *quilombolas* (N=350), formed by residents of quilombola communities recognized by Palmares Cultural Foundation, and *non-quilombolas* (N=461).

The sample size calculation considered a precision of 5%, confidence level of 95%, and design effect of 1.0, resulting in 210 interviews for *non-quilombola* adolescents and 184 for *quilombolas*. An addition of 15% was made to mitigate possible losses. However, considering that there would be only one adolescent interviewed per household in *quilombola* families and that the number of households would be exceeded, we added 7.1% to the losses in this group.

The data collection instrument was developed from national surveys[23,24]. A pilot study was conducted in a rural community not participating in the main study to evaluate the data collection instruments and the feasibility of the research.

The collection was conducted from January to May 2015, with previously trained interviewers. The interviews were performed with portable computers (HP Pocket Rx5710). The *Questionnaire Development System* software (QDS™; NOVA Research Company), version 2.6.1, was used for scheduling and data storage. For quality assurance, re-interviews were conducted in 5% of the sample within 7 days of the initial interview.

The dependent variable of this study, medication use, was obtained through the following question, "In the past 15 days have you used any medication?". This was verified by the pre-

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sentation of packages or prescriptions. For the affirmative answers, the name, pharmaceutical form, and dose of each pharmaceutical specialty were collected. The specialties were classified according to the *Anatomical Therapeutic Chemical Classification System* (ATC)[25] at all levels: anatomical, therapeutic and chemical. Each specialty was subdivided into its active principles with the help of Anvisa's bulary[26]. To understand if the medication was prescribed or non-prescribed, a second question was asked, "Was this medication prescribed by a health care professional (doctor, nurse, or dentist)?".

The independent variables were selected from the questionnaire after a literature review we adjusted and organized in a hierarchical model divided into three blocks according to proximity to the dependent variable: sociodemographic factors and household characteristics (sex, skin color, schooling, current job, economic level, household walls), lifestyle (one-dose alcohol experimentation, tobacco experimentation), family and social context (number of household residents, family composition, family supervision, number of close friends) and, finally, the variables indicating health status and service use (self-assessment of health, toothache in the last 6 months, leaving activities due to illness, seeking care in the last 15 days, medical visits in the last 12 months, hospitalization in the 12 months, regular source of care, use of natural medications) (Figure 1).

The simple frequencies of prescribed and non-prescribed medication use were estimated for each stratum separately, *quilombolas* and *non-quilombolas*. The group that used both prescribed and non-prescribed medications was excluded from the analysis of factors associated with use. The medication was also used as the unit of analysis for the description of the pharmaceutical specialties by means of the frequency distribution.

To estimate the association between medication use with the independent variables, the Odds Ratio (OR) was performed, for each stratum individually (*quilombola* and *non-quilombola*). The OR was estimated by multinomial logistic regression. Multiple analysis was considered to minimize the confounding effect. All variables that in the bivariate analysis showed Pearson's chi-square or Fisher's p value <0.20 were included in the initial model. Model fitting was performed using the hierarchical bakward method, and Akaike's criterion (AIC) was applied for adequacy.

For the adjustment of the multiple hierarchical model, for both *non-quilombola* and *quilombola* strata, the independent variables corresponding to the conceptual model were used according to the level of proximity with the dependent variable (Figure 1). For model 1, the variables of the distal block, sociodemographic factors and household characteristics were used for the adjustment; for the adjustment of model 2, the variables of the intermediate block plus the distal block, lifestyle, family and social context, sociodemographic factors and household characteristics were used; for the adjustment of model 3, the variables of the proximal model were used, plus the variables of the intermediate and distal block, health conditions and use of services, lifestyle, family and social context, sociodemographic factors and household characteristics. For the other tests and for the permanence of the variables in the final model, a significance level of p value <0.05 was considered. Stata software, version 15.0 (Stata Corporation, College Station, USA) was used for the analyses.

Results

Of the 390 rural adolescents, four reported the use of natural, herbal or homeopathic medicines, which we excluded from the analysis. Three individuals reported using both prescribed and non-prescribed medications, and were also excluded from the analysis. The final sample was composed of 383 adolescents, 56.9% (218) of which were *non-quilombolas* and 43.1% (165) *quilombolas*. Of this total, 72.0% (276) did not use medications, 13.6% (52) used only prescribed medications, and 14.4% (55) used only non-prescribed medications. Considering the strata of *non-quilombola* and *quilombola* adolescents, we observed 75.2% (164) and 67.9% (112) of non-use, 11.5% (25) and 16.3% (27) use of prescribed medications, and 13.3% (29) and 15.8% (26) use of non-prescribed medication, respectively.

Of the 143 medications used, the most frequent prescribed pharmacological specialties in the *non-quilombola* adolescent stratum were 43.7% nervous system medications, with 30.8% analgesics, and 23.1% anti-infective for systemic use, with 20.5% antibacterials. Among the non-prescription medications, nervous system medications stood out (63.6%), with 63.6% of analgesics (Table 1).

For the *quilombolas*, the following medications were prominent among those prescribed:

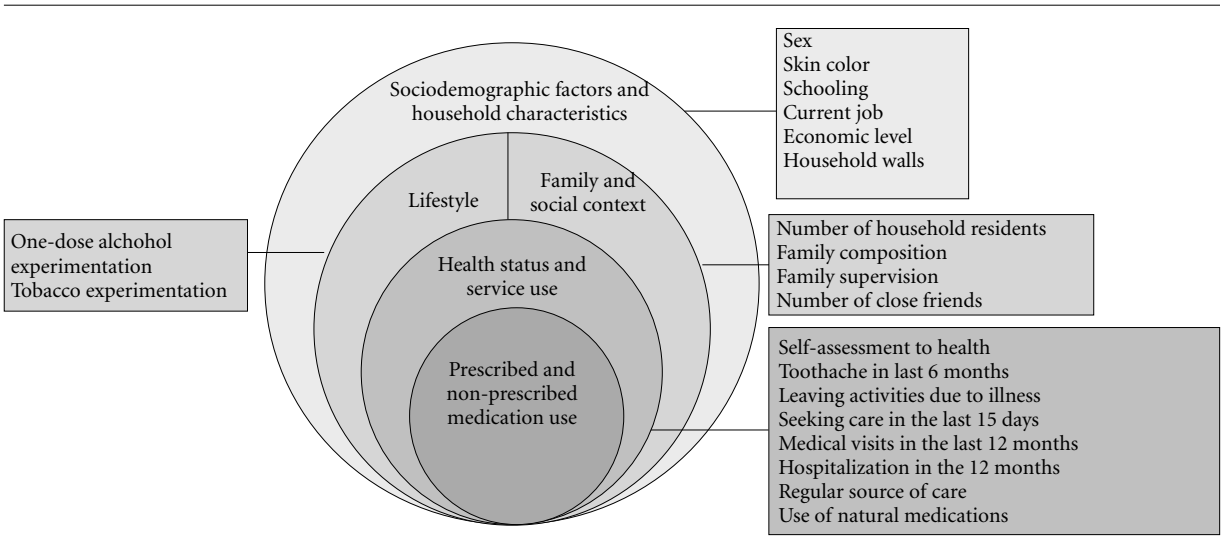

Figure 1. Conceptual model for multiple analysis of factors associated with medication use by rural adolescents.

Source: Author, 2017.

medications for the nervous system (21.4%), with 14.3% of antiepileptic medications; digestive system and metabolism (21.4%), with 11.9% of medications for gastrointestinal disorders; musculoskeletal system (19.0%), with 19.0% of anti-inflammatory and antirheumatic medications; respiratory system (16.8%), and anti-infectious agents for systemic use (11.9%), with 11.9% of antibacterial drugs. Among the non-prescribed medications, 72.4% acted on the nervous system, being all analgesics, and 17.2% for the Musculo-skeletal system, with 13.8% anti-inflammatory and antirheumatic medications (Table 1).

The use of medications by *non-quilombola* adolescents showed a significant association with one-dose alcohol experimentation, leaving activities due to illness, and seeking care in the past 15 days (Table 2).

For the *quilombola* adolescent stratum, medication use was significantly different according to economic level, one-dose alcohol experimentation, and the variables of health status and service utilization (self-assessment of health, toothache in the past 6 months, leaving activities due to illness, seeking care in the past 15 days, medical visits in the past 12 months, and have had regular source of care) (Table 2).

After adjusted analysis, the following factors were shown to increase the use of prescribed medication by non-*quilombola* adolescents: leaving activities due to illness (OR 4.36; 95%CI 1.47-12.91) and seeking care in the last 15 days (OR 3.63; 95%CI 1.34-9.81). Non-prescribed use was positively associated with economic levels B and C (OR 2.57; 95%CI 1.11-5.99) and higher schooling (OR 1.27; 95%CI 1.10-1.47) (Table 3).

Among adolescents from *quilombola* communities, the use of prescribed medications was associated with economic levels B and C (OR 2.71; 95%CI 1.08-6.78), the occurrence of toothache in the last 6 months (OR 3.25; 95%CI 1.16-9.12), leaving activities due to illness (OR 6.41; 95%CI 1.49-27.64) and have had a regular source of care (OR 4.28; 95%CI 1.13-16.35). Associations with the use of non-prescribed medications were identified with increasing schooling (OR 1.42; 95%CI 1.18-1.72). The variable medical visits in the last 12 months, despite not being statistically significant, proved important to explain the use behavior in this population (Table 3).

Discussion

This study found a low prevalence of medication use among rural adolescents when compared to other studies conducted with adolescents[4,8,27-29]. We observed a greater diversity of pharmaceutical specialties used by the *quilombolas* and differ-

Table 1. Distribution of pharmaceutical specialties used by adolescents, in groups and subgroups, according to anatomical and therapeutic classification (ATC levels 1 and 2). Adolescer Survey, Bahia, 2015.

Anatomical and Therapeutic Group		Non quilombola				Quilombolas			
		Prescribed		Non-prescribed		Prescribed		Non-prescribed	
		n	%	n	%	n	%	n	%
Alimentary tract and metabolism	A	2	5.2	3	9.0	9	21.4	0	0.0
Stomatological preparations	A01	1	2.6	0	0.0	-	-	-	-
Drugs for acid related disorders	A02	-	-	-	-	3	7.1	0	0.0
Drugs for functional gastrointestinal disorders	A03	0	0.0	1	3.0	5	11.9	0	0.0
Antidiarrheals, intestinal antiinflammatory/ antiinfective agents	A07	0	0.0	1	3.0	1	2.4	0	0.0
Vitamins	A11	0	0.0	1	3.0	-	-	-	-
Appetite stimulants	A15	1	2.6	0	0.0	-	-	-	-
Blood and blood forming organs	B	-	-	-	-	2	4.8	0	0.0
Antianemic preparations	B03	-	-	-	-	2	4.8	0	0,0
Genito urinary system and sex hormones	G	2	5.1	2	6.0	1	2.4	1	3.4
Sex hormones and modulators of the genital system	G03	2	5.1	2	6.0	1	2.4	1	3.4
Systemic hormonal preparations	H	2	5.2	0	0.0	-	-	-	-
Corticosteroids for systemic use	H02	1	2.6	0	0.0	-	-	-	-
Thyroid therapy	H03	1	2.6	0	0.0	-	-	-	-
Antiinfectives for systemic use	J	9	23.1	3	9.1	5	11.9	1	3.4
Antibacterials for systemic use	J01	8	20.5	3	9.1	5	11.9	1	3.4
Antimycotics for systemic use	J02	1	2.6	0	0.0	-	-	-	-
Musculo-skeletal system	M	3	7.7	3	9.1	8	19.0	5	17.2
Antiinflammatory and antirheumatic products	M01	3	7.7	3	9.1	8	19.0	4	13.8
Muscle relaxants	M03	-	-	-	-	0	0.0	1	3.4
Nervous system	N	17	43.7	21	63.6	9	21.4	21	72.4
Analgesics	N02	12	30.8	21	63.6	3	7.1	21	72.4
Antiepileptics	N03	4	10.3	0	0.0	6	14.3	0	0.0
Psycholeptics	N05	1	2.6	0	0.0	-	-	-	-
Antiparasitic products, insecticides and repellents	P	1	2.6	0	0.0	1	2.4	0	0.0
Antiprotozoals	P01	1	2.6	0	0.0	-	-	-	-
Anthelmintics	P02	-	-	-	-	1	2.4	0	0.0
Respiratory system	R	3	7.8	1	3.0	7	16.8	1	3.4
Nasal preparations	R01	1	2.6	0	0.0	1	2.4	0	0.0
Throat preparations	R02	-	-	-	-	1	2.4	0	0.0
Drugs for obstructive airway diseases	R03	-	-	-	-	3	7.2	0	0.0
Cough and cold preparations	R05	1	2.6	0	0.0	1	2.4	0	0.0
Antihistamines for systemic use	R06	1	2.6	1	3.0	1	2.4	1	3.4
Total		39	100.0	33	100.0	42	100.0	29	100.0

Source: Author, 2017.

ent associated factors, which reveals the specificity of this community.

The prevalence of prescribed (13.6%) and non-prescribed (14.4%) medication use for both *non-quilombola* and *quilombola* adolescents was lower compared to other studies also conducted with adolescents[4,8,27-29]. Hales *et al*[27] demonstrated that the prescribed medication use among adolescents between 12 and 19 years old in the United States from 1999 to 2014 was 25.9%. In Brazil, Pelotas, RS, Bergmann *et al.*[29] identified that adolescents aged 11 to 18 years in 1993 exhibited 36.7% of such use. Silva *et al.*[10], in Porto Alegre, RS, Brazil, showed a prevalence of 49.5%

Table 2. Medication use according to some selected variables. Adolescer Survey. Bahia. 2015.

Variables	Non-quilombola							Quilombola						
	Non-use		Prescribed		Non-prescribed		p valor	Non-use		Prescribed		Non-prescribed		p value
	n	%	n	%	n	%		n	%	n	%		%	
Sex							0.235*							0.305*
Male	89	78.8	9	8.0	15	13.2		50	66.7	10	13.3	15	20.0	
Femmale	75	71.5	16	15.2	14	13.3		62	68.9	17	18.9	11	12.2	
Cor							0.488*							0.357†
Non-black	51	81.0	5	7.9	7	11.1		18	69.2	6	23.1	2	7.7	
Black	113	72.9	20	12.9	22	14.2		94	67.6	21	15.1	24	17.3	
Current job							0.600*							0.443*
No	96	77.4	12	9.7	16	12.9		80	70.8	16	14.2	17	15.0	
Yes	68	72.3	13	13.8	13	13.8		32	61.5	11	21.2	9	17.3	
Economic level							0.079*							0.039*
D and E	88	80.0	13	11.8	9	8.2		92	73.0	17	13.5	17	13.5	
B and C	76	70.4	12	11.1	20	18.5		20	51.3	10	25.6	9	23.1	
Household walls							0.751*							0.082*
Uncoated	126	74.1	20	11.8	24	14.1		77	63.1	24	19.7	21	17.2	
Coated	38	79.2	5	10.4	5	10.4		34	81.0	3	7.1	5	11.9	
Number of household residents							0.330*							0.106*
≤ 4 residents	93	72.1	18	13.9	18	14.0		53	62.4	19	22.4	13	15.2	
> 4 residents	71	79.7	7	7.9	11	12.4		48	73.4	8	10.1	13	16.5	
Family composition							0.144†							0.799†
Lives with father and mother	118	76.6	18	11.7	18	11.7		70	66.7	20	19.1	15	14.2	
Lives with father or mother	36	73.5	3	6.1	10	20.4		28	68.3	5	12.2	8	19.5	
Not living with father and mother	10	66.7	4	26.6	1	6.7		14	73.7	2	10.5	3	15.8	
Family supervision							0.185†							0.509†
Always/most of the time	101	74.3	17	12.5	18	13.2		69	70.4	16	16.3	13	13.3	
Sometimes	31	79.5	1	2.6	7	17.9		19	61.3	4	12.9	8	25.8	
Never/rarely	31	81.5	5	13.2	2	5.3		21	63.5	7	21.0	5	15.5	
Number of close friends							0.726†							1.000†
≤ 2 close friends	30	76.9	3	7.7	6	15.4		19	70.4	4	14.8	4	14.8	
> 2 close friends	134	74.9	22	12.3	23	12.8		93	67.4	23	16.7	22	15.9	
One-dose alcohol experimentation							0.014*							0.039*
No	120	81.1	13	8.8	15	10.1		90	70.9	22	17.3	15	11.8	
Yes	44	62.9	12	17.1	14	20.0		22	57.9	5	13.1	11	29.0	
Tobacco experimentation							0.410†							0.076†
No	156	75.7	24	11.7	26	12.6		109	69.0	26	16.5	23	14.5	
Yes	8	66.7	1	8.33	3	25.0		3	42.9	1	14.2	3	42.9	

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in adolescent students. In Vitoria, ES, 42.3% of school adolescents used medication, and of this total, 46.7% were prescribed[8].

Arrais[4], in a study based on data from the National Survey on Access, Use and Promotion of Rational Use of Medicines in Brazil (PNAUM),

Table 2. Medication use according to some selected variables. Adolescer Survey, Bahia, 2015.

Variables	Non-quilombola							Quilombola						
	Non-use		Prescribed		Non-prescribed		p valor	Non-use		Prescribed		Non-prescribed		p value
	n	%	n	%	n	%		n	%	n	%		%	
Self-assessment of health							0.746*							0.034*
Very good/good/normal	41	72.0	8	14.0	8	14.0		22	52.4	9	21.4	11	26.2	
Bad/very bad	123	76.4	17	10.6	21	13.0		90	73.2	18	14.6	15	12.2	
Toothache in the last 6 months							0.326†							0.019*
No	136	76.8	20	11.3	21	11.9		93	71.5	16	12.3	21	16.2	
Yes	27	67.50	5	12.50	8	20.00		19	55.9	11	32.3	4	11.8	
Leaving activity due to illness							0.000†							0.004†
No	151	77.4	16	8.2	28	14.4		107	70.9	20	13.2	24	15.9	
Yes	13	56.5	9	39.1	1	4.4		5	35.7	7	50.0	2	14.3	
Seeking care in the last 15 days							0.001*							0.000†
No	142	77.6	14	7.7	27	14.7		102	71.3	15	10.5	26	18.2	
Yes	22	62.9	11	31.4	2	5.7		10	45.5	12	54.5	0	0.0	
Medical visits in the last 12 months							0.098*							0.012*
No	77	80.2	6	6.3	13	13.5		58	70.8	7	8.5	17	20.7	
Yes	87	71.3	19	15.6	16	13.1		54	65.1	20	24.1	9	10.8	
Hospitalization in the last 12 months							0.113†							0.182†
No	155	76.4	21	10.3	27	13.3		106	69.3	23	15.0	24	15.7	
Yes	9	60.0	4	26.7	2	13.3		6	50.0	4	33.3	2	16.7	
Regular source of care							0.576*							0.050*
No	49	77.8	5	7.9	9	14.3		39	79.6	3	6.1	7	14.3	
Yes	115	74.2	20	12.9	20	12.9		73	62.9	24	20.7	19	16.4	
Use of natural medications							0.573*							0.969*
No	112	77.3	16	11.0	17	11.7		76	68.5	18	16.2	17	15.3	
Yes	52	71.2	9	12.3	12	16.5		36	66.7	9	16.7	9	16.6	

*p-value calculated by chi-square test; †p value calculated by Fisher's exact test.

Source: Author, 2017.

showed that the prevalence of self-medication in the 15 days prior to the interview in Brazil was 19.6% for adolescents. However, other studies on self-medication in Brazil have shown even higher prevalences[8,30-34]. Pfaffenbachet *et al.*[34], reported that between 1988 and 2009, the prevalence of self-medication in studies with adolescents in Brazil ranged from 21.1% to 56.6%. In another study with adolescent students in Sorocaba, SP, 96.2% self-medicated[31]. In Vitoria, ES, among the adolescents who used medications, 53.3% used non-prescribed ones[8].

The existence of barriers that hinder the access to medications by the population of rural adolescents must be considered, which can be justified by the geographical location of the communities, in areas with more difficult access to health services. The greater distances to health services or pharmacies, poor conditions of the public roads that make transportation more difficult, or insufficient/inadequate transportation, the greater financial cost and time expenditure that these individuals face, may expose them to fewer outpatient visits, as well as less acquisition[5,6,15].

Furthermore, when it comes to investigating the use of medications by a certain population, one must take into consideration the comorbidi-

Table 3. Multiple analysis of factors associated with medication use. Adolescer Survey, Bahia, 2015.

Variáveis	Non-quilombola											
	Model 1				Model 2				Model 3			
	Prescribed		Non-prescribed		Prescribed		Non-prescribed		Prescribed		Non-prescribed	
	OR*	95%CI†	OR*	95%CI†	OR*	95%CI†	OR*	95%CI†	OR*	95%CI†	OR*	95%CI†
Economic level												
D and E	1,00	-	1,00	-	1,00	-	1,00	-	1,00	-	1,00	-
B and C	1,07	0,46-2,48	2,57	1,11-5,99	1,03	0,44-2,40	2,41	1,01-5,75	1,22	0,49-3,04	2,26	0,94-5,41
Schooling (in complete years of study)					1,14	0,98-1,32	1,27	1,10-1,47	1,15	0,98-1,34	1,27	1,10-1,46
Leaving activity due to illness												
No									1,00	-	1,00	-
Yes									4,36	1,47-12,91	0,53	0,06-4,43
Seeking care in the last 15 days												
No									1,00	-	1,00	-
Yes									3,63	1,34-9,81	0,61	0,13-2,87
AIC	321,46				311,95				298,71			
	Quilombolas											
Economic level												
D and E	1,00	-	1,00	-	1,00	-	1,00	-	1,00	-	1,00	-
B and C	2,71	1,08-6,78	2,43	0,95-6,24	2,51	0,99-6,35	1,92	0,70-5,23	1,62	0,55-4,82	1,81	0,58-5,68
Schooling (in complete years of study)					1,12	0,94-1,33	1,42	1,18-1,72	1,16	0,94-1,42	1,49	1,20-1,85
Leaving activity due to illness												
No									1,00	-	1,00	-
Yes									6,41	1,49-27,64	2,19,	0,30-16,16
Medical visits in the last 12 months												
No									1,00	-	1,00	-
Yes									2,20	0,78-6,21	0,38	0,13-1,05
Toothache in the last 6 months												
No									1,00	-	1,00	-
Yes									3,25	1,16-9,12	1,10	0,29-4,10
Regular source of care												
No									1,00	-	1,00	-
Yes									4,28	1,13-16,35	1,75	0,60-5,15
AIC	282,40				270,74				252,23			

Note: The group that used no medications was set as the reference category for the analysis. *OR: Odds Ratio. †95%CI: 95% confidence interval.

Source: Author, 2017.

ties they refer to.[5] It is also possible that our sample was composed of healthier adolescents than the studies cited, if we consider that adolescents from the rural area of Vitoria da Conquista, BA, reported healthier eating habits and healthier behaviors[22], reduced tobacco consumption[35] and,

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therefore, have consumed less medication. However, since the illness profile of the population studied was not evaluated, it was not possible to establish this relationship.

The prevalence of use of prescribed and non-prescribed medications was similar among *quilombola* and *non-quilombola* adolescents. However, the *quilombolas* showed a greater diversity of pharmaceutical specialties consumed by prescription, such as: nervous system, digestive system and metabolism, musculoskeletal, and respiratory, in addition to anti-infective medications for systemic use. The anti-anemic preparations and anthelmintics are also highlighted, which were only evidenced in this group.

Linked to the reality of rural communities, which are, in general of low economic status and precarious sanitary conditions, the *quilombola* communities present peculiar characteristics of vulnerability and exclusion that were shaped by the historical, socioeconomic, and cultural context in which they are inserted[18,21].

Silva *et al.*[36], based on the same rural community of adolescents, revealed that 52.1% of the population had food insecure, being significantly more present in the *quilombola* population (64.9%) in relation to the *non-quilombola* population (42.0%). Other differences were also found, such as worse conditions of water supply, piped water, and treated water in the *quilombola* population compared to the *non-quilombola* population. Thus, these results may show the influence of these factors on the higher risk of illness and self-perception of health[22], which has an impact on the medication's use[37].

Among the pharmaceutical specialties, comparable to other studies, medications from the analgesic class were the most used[28,31,38], mainly among the non-prescribed ones. This fact is explained both by the free access to these medications and the higher incidence of mild or acute diseases present in this age group[31].

Access to medications is facilitated both by the presence of home inventory and by the permissiveness of buying over-the-counter medications[19], which favors self-medication[20]. Among adolescents, the use of non-prescribed medications has a great family influence in the decision making and choice of the medication to be used, which may reflect in the reproduction of this posture when these individuals reach autonomy[4]. This behavior can be evaluated as an opportunity for the individual to take responsibility to take care of his own health in situations of minor illnesses, and to encourage self-care [23]. But it can also be seen as a health risk due to its irrational use, as well as an indication of the difficulty of access to health services[23], and the limited access of adolescents to services.

The consumption of systemic antibacterials used without medical prescription, in both groups, is noteworthy for going against the restrictions set forth in the Collegiate Directorate Resolution (RDC), No. 20 of 2011, which provides for the control of antimicrobials[39]. This points to the importance of the presence of the pharmacist in these areas of difficult access to health services to avoid the irrational use of medications.

The pharmacist can be inserted in Primary Care, through the Family Health Support Center (NASF), with the objective of ensuring that the population has access to quality pharmacotherapy, to the provision of pharmaceutical services, and to contribute to the rational use of medications, as established in Ordinance No. 154, January 24, 2008, of the Ministry of Health[40]. However, for the effective exercise of this professional, it is necessary that he establishes a bond of trust with the community. This requires more time with the community, which would make it possible to identify the demands of each location, and to apply effective interventions.

It is also a warning sign the appearance of medications from the class of sex hormones and genital system modulators as self-medication for adolescents in both groups. Considering that these drugs are prescribed in the routine of local health units, this result may reflect in the fragility of insertion of the adolescent in sexual health policies, which besides not preventing sexually transmitted infections (STI), their irrational use may not guarantee contraception.

Sousa *et al.*[41], identified that for the same rural adolescents, 38.6% of the *non-quilombolas* and 59.9% of the *quilombolas* did not receive any guidance on pregnancy, 36.3% of the *non-quilombolas* and 53.9% of the quilombolas did not receive any guidance on AIDS or other STIs, and 60.4% started their sexual lives at the age of 15 or younger, which could increase the risk of unwanted pregnancy and sexually transmitted infections, especially among *quilombolas*.

Economic levels B and C increased the chance of use of prescribed medication by 1.71 times among the *quilombola* adolescents. This variable also positively influenced self-medication among non-*quilombola* adolescents. Boing *et al*[42] argue that, for individuals with higher income, the consumption of medications tends to be higher due

to the financial ease of obtaining them. Another aspect to be highlighted is the location of the Family Health Units (FHU), which, for the most part, are located in *non-quilombola* communities, enabling their acquisition, when prescribed, by the public health system. Therefore, for those adolescents who live in communities at a great distance from the FHU, the financial dependence for the acquisition of medications is greater.

The association between higher schooling and greater chance of medication use was observed only for non-prescribed medications, both for *quilombola* and *non-quilombola* adolescents. This finding is often among adult individuals, in which the increase in schooling allows for a better understanding of the therapeutics used[7,43]. Among adolescents, a possible explanation for this positive association is that the increase in schooling coincides with the increase in age and the gain in autonomy, which can influence the adolescent's attitude in taking responsibility for their own health[11,31], especially concerning self-medication behavior.

The seeking for the same health service increased the use of prescribed medications by 3.28 times among *quilombola* adolescents, which reinforces the importance of the relationship of trust that individuals develop with the FHU team and the formation of a bond. It is only through this connection between the individual and the unit's professionals that comprehensive care of adolescent health becomes possible[44].

This study also identified that leaving activities due to illness increased the chance of prescribed medication use among *non-quilombola* adolescents by 3.36 times, and among *quilombolas*, by 5.41 times. Individuals in poorer health conditions tend to seek more services and medication remains one of the most used therapeutic strategies. When it comes to adolescents, the low burden of morbidity leads to the use of medications based on curative actions, associated with the influence of the caregiver, while those with more serious medical conditions tend to seek medical assistance, which consequently leads to the consumption of prescribed medications[6].

Another important indicator of poorer health status among *quilombola* adolescents was the occurrence of toothache in the past 6 months, increasing the chance of prescribed medication use by 2.25 times. This association may reveal the difficulty of access to dental services and continued oral health education. Silva[45], in a study on oral hygiene habits with this same population, showed that dental pain, besides being related to the conditions of location of oral health services, transportation difficulties, and prioritization of some population groups, is also related to the inequities and social vulnerability present in this population.

Furthermore, among the *quilombolas*, despite the absence of statistical significance, having had a medical visit in the last 12 months proved to be a protective factor for self-medication, revealing that the effective access to health services can minimize this behavior.

This study has some limitations. The age group studied ranges from younger to older adolescents, and the degree of autonomy varies. Thus, in cases where the choice of the medication to be used came from a family member, for example, the adolescent may not have been aware of the use and some degree of memory bias may have emerged. One strategy to minimize this possible bias was to use the 15-day recall period. Furthermore, considering that younger adolescents may not be responsible for their treatment, the existence of some other information bias cannot be ruled out.

Another limitation was the failure to obtain clinical information about the diseases for which the adolescents used the medications, which would have contributed to the analysis and understanding of the results. In addition, the low number of observations in some of the analyses may have reduced the sample power, limiting the detection capacity of the statistical tests used. However, this fact does not compromise the found associations.

Conclusion

The low prevalence of medication use observed in both non-*quilombola* and *quilombola* adolescents suggests less access to these products. Economic levels B and C, higher schooling, leaving activities due to illness and seeking care in the last 15 days were associated with the use of prescribed and non-prescribed medications in both groups. Although *quilombola* adolescents belong to the same rural area as the other communities, they presented different predictors: the presence of toothache in the last 6 months and have had a regular source of care increased the use of prescribed drugs in this group.

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Collaborations

DS Medeiros, MAS Rêgo and PRO Almeida participated in the study design, study implementation and data collection. All authors participated in the writing of the article, analysis and interpretation of the results. In addition to the contributions already mentioned, all authors were responsible for all aspects of the study, in ensuring the accuracy and integrity of any part of the study. All authors have read and approved the final version of this manuscript.

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