



Beliefs and Attitudes of Brazilian Patients regarding Antibiotics use

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ABSTRACT

Plan: *In order to gather information on the behavior and perceptions on the use of antibiotics by the population of a Brazilian city.*

Methodology: *Appropriate treatment of infectious diseases requires: a correct diagnosis, the exact choice of the drug, and especially that the patient use the antibiotic properly. The present study searched for information on the behavior and beliefs of Brazilian patients regarding the use of antibiotics. The study interviewed 385 patients who were treated with these drugs.*

Outcome: *The results showed a misinformed public with false beliefs, including that antibiotic use can improve conditions such as colds and flu. Educational campaigns should be directed to those populations by improving health education, increasing patients' compliance to treatments.*

Key words: *beliefs, attitude, antibiotic use*

1. INTRODUCTION

The antibiotic's use changed, in dramatic way, the relationship between humanity and infectious diseases. Before 1940s, bacterial infections progressed quickly and there was no way to treat them. The inadequate use of antibiotics, either by overuse, or inappropriate use, may be leading humanity back to this time¹

In this regard, the concern about bacterial resistance is increasing, as is increasing the number of multi-resistant microorganisms, accompanied by a drastic decrease in the last 30 years, by introducing new antibacterial agents for clinical use. It is also necessary to remember about the misuse of these drugs we have done in the last 60 years².

Numerous organizations, including WHO, seeking to combat bacterial resistance, have suggested educational campaigns addressed to laypeople, parents and health professionals, showing the importance of proper use of antibiotics and its impact on decreasing levels of bacterial resistance. The misuse and inappropriate prescribing should be avoided with adequate and secure information to prescribers and patients³⁻⁵.



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Therefore, studies on the level of population's knowledge about use of antibiotics have been shown relevant to understand the level of knowledge of these people in order to address educational campaigns that can correct the inappropriate use of these drugs.

The aim of this study was to get information on the behavior and perceptions on the use of antibiotics by the population of a Brazilian city.

2. MATERIALS AND METHODS

This study was carried out from June 2011 to February 2012 using a cross-sectional design⁶. A pre-validated, structured and anonymous questionnaire was applied, by six Pharmacy students, in three primary health centers, to 385 adults that, after medical appointment, had received an antibiotic prescription. Besides the demographic information, the questionnaire comprised 14 statements, being 7 false and 7 true statements.

The statements were informed randomly and the patients should choose, for each statement, one of five options.

- a) *I'm sure the statement is true*
- b) *I believe the statement is true (not sure)*
- c) *I have no information about it*
- d) *I believe the statement is false (not sure)*
- e) *I'm sure the statement is false.*

According to the options selected (a to e), volunteers received scores as follows:

For true statement that responded alternative: a) *earned 5 points; b) earned 4 points; c) earned 3 points; d) earned 2 points and e) only one point.*

For false statement that responded alternative: a) *earned 1 point; b) earned 2 points; c) earned 3 points; d) earned 4 points and e) earned 5 points.*

For all 14 statements, the maximum score that can be obtained was 70 and the minimum 14.

True statements informed

1. Children take many antibiotics, even without need.
2. Parents should not ask doctors to prescribe antibiotics to children.
3. Physicians should not prescribe antibiotics when not needed.
4. Overuse of antibiotics can make bacteria resistant and the antibiotic loses its effect.
5. The use of some antibiotics and contraceptive pills may decrease the effect of the pill and the woman can get pregnant.
6. Not every fever needs to be treated with antibiotics.
7. Antibiotics are used for diseases caused by bacteria.

False statements informed

8. When people has flu and take an antibiotic, it prevents the appearance of other infections.
9. After five days with the flu is important to take an antibiotic.
10. On a cold, when the nasal discharge color changes from yellow to green, it's time to take an antibiotic.
11. Antibiotics are useful for treating colds.
12. Antibiotics should be taken with milk in order to prevent damage to the stomach.
13. Antibiotics damage the teeth.
14. Antibiotics are used for diseases caused by viruses.

Table 1. Demographic characteristics and average score of the 385 respondents in Brazil.

<i>Groups</i>		<i>N (%)</i>	<i>Average Score (± SD)</i>	<i>p</i>
Sex	Male	149 (38,7)	44,83 (9,23)	0,013*
	Female	236 (61,3)	47,21 (8,44)	
Age	18 to 30	170 (44,1)	47,68 (8,57)	0,0004**
	31 to 40	72 (18,7)	48,01 (9,16)	
	41 or more	143 (37,1)	43,97 (9,27)	
Educational level	Illiterate	166 (43,1)	45,02 (9,17)	0,1155**
	Elementary	71 (18,4)	47,52 (7,98)	
	High School	128 (33,2)	47,00 (9,70)	
	College	20 (5,1)	47,90 (7,70)	

* Student's t test, ** Anova plus Tukey-Kramer test * = (p<0.05), ** = (p<0.001), *** = (p>0.05)

The average score obtained for each demographic group was compared and a descriptive statistics for the fourteen statements presented has been made. The statistical analysis was carried out by t test and Anova plus Tukey-Kramer with 5% significance.

The survey was conducted in Fernando polis city in São Paulo State – Brazil; 65.000 inhabitants and human development index = 0,832. The infant mortality rate is 8.79/1000 live births. Interviewers obtained verbal and formal consent from all study participants before administering the questionnaire. The study was approved by University of Sorocaba Ethical Committee (# 04/2010) and conducted in accordance with Helsinki Declaration.

Table 2. Descriptive statistics for the 14 statements shown to volunteers

Statement	<i>True statments</i>							<i>False statements</i>						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Average	3,40	3,75	4,36	4,01	2,90	3,73	4,05	2,66	2,89	3,04	3,20	3,27	1,72	3,32
S.D.	1,89	1,76	1,39	1,57	1,70	1,70	1,54	1,68	1,83	1,62	1,86	1,89	1,41	1,75
Mode	5	5	5	5	5	5	5	1	1	5	5	5	1	5
Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Maximun	5	5	5	5	5	5	5	5	5	5	5	5	5	5

S.D. - Standard Deviation

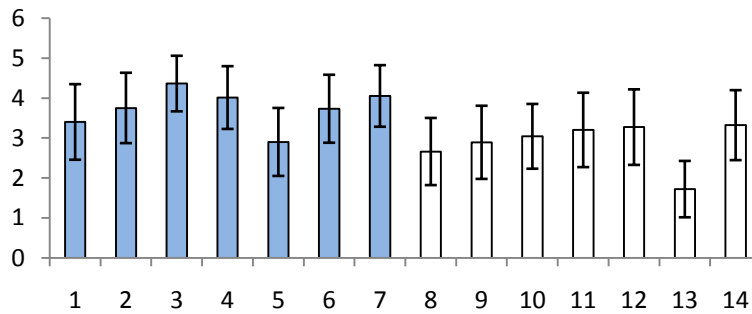


Figure 1. Average score (\pm Standard Deviation) for true statements (1 to 7) and false statements (8 to 14)

3. RESULTS AND DISCUSSION

The data in table 1 show the average score obtained from all statements for each demographic group studied. It can be observed that women ($p= 0.013$) and people under 40 years ($p= 0.0004$), regardless of educational level, had better information and more knowledge about use of antibiotics. The results are similar to those found in recent studies conducted in Greece, England and Korea that showed the same relationship, i.e. better information on using antibiotics in women and youngsters⁶⁻⁸.

The data in table 2 shows for each of the statements, the average score obtained for the 385 volunteers, standard deviation, maximum and minimum points and the obtained mode.

Statement 3 (Physicians should not prescribe antibiotics when not needed) showed the highest score among all the statements in this population, as well as lower standard deviation, showing a uniform and adequate information in the studied population.

Another result that must be noted refers to statement 13, which shows the incorrect information that antibiotic use can damage the teeth. The majority of the studied population considers the information to be true, showing the lowest average obtained: 1.72 points (mode = 1). It is important to emphasize that this statement also had a small standard deviation, showing that this information is erroneously disseminated among the studied population and with certain consensus.

Although it is clear in the literature, the action of tetracycline on enamel staining in children, an aesthetic problem, there are no reports about clinical problems of the teeth by the action of any antibiotic⁹. This misinformation can lead to premature discontinuation of treatment without compliance with whatever was prescribed.

Another important result was the low mean score obtained for questions 8 and 9 (2.66 and 2.89 respectively), false statements reporting that antibiotics somehow can help in common colds and flu. This false information must be corrected for the lay population, because these people still believe that antibiotics, somehow, can help in common cold or flu. These data were very similar to those found in a recent English study that showed that about 40% of respondents have the perception that these drugs help in treatment of colds and flu⁸.

Drug interaction between certain antibiotics and oral contraceptives was also presented to volunteers. The literature shows that this association, especially among rifampin, tetracyclines and penicillins may reduce the contraceptive effect of the pill and there is an increased risk of pregnancy¹⁰. The results showed a lack of information and it is even more worrying, especially given the large number of women participating in the study (236).

4. CONCLUSION

The results of this study suggest the necessity of educational campaigns aimed at common people, in order to take adequate information and promote the rational use of drugs. Counted countries have promoted educational campaigns with significant results in reducing antibiotics use and consequently the levels of antimicrobial resistance³.

Studies that detect inadequate information or lack of them should be encouraged, since the change of behavior and attitudes of the population regarding the use of antibiotics is an important first step in combating the misuse of antibiotics and antimicrobial resistance.

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