

# Relation between water pollution and the incidence of diseases in the communities of Augusto Franco and Treze de Julho, neighborhoods of Aracaju/Se, Brazil

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O presente trabalho teve como objetivo estabelecer um quadro comparativo entre as patologias causadas por ingestão de água contaminada em dois bairros de Aracaju-SE: a comunidade da classe média baixa do Augusto Franco e a de classe média alta da Treze de Julho. A Pesquisa de Campo teve uma abordagem quantitativa-qualitativa. Como instrumento de coleta de dados foi utilizado entrevista estruturada e aos dados coletados foram aplicados os procedimentos estatístico e comparativo. Os resultados obtidos no bairro Treze de julho foram mais favoráveis quanto à qualidade da água. As condições da mesma foram relacionadas à incidência de doenças inclusive com as comunidades identificando-as. Estas informaram que o único meio de tratamento de água que têm acesso é o fornecido pela DESO e, como esta chega com características diferentes nos dois bairros pode ser devido a vazamento e infiltração no sistema de canalização do Augusto Franco. No Treze de Julho condomínios podem estar tomando algumas medidas em relação à caixa d'água e utilização de poços artesianos. O descaso das autoridades diante da existência de focos de contaminações facilmente perceptíveis nestes logradouros pode resultar em problemas de saúde pública.

Palavras-chave: qualidade da água; estudo comparativo; Aracaju-Se

This study aims to establish a comparative picture between the diseases caused by ingestion of contaminated water in two districts of Aracaju-SE: the lower middle-class community of Augusto Franco and upper middle class Treze de Julho. The field research was a qualitative-quantitative approach. As data collection instrument it was used structured interviews and data collected were applied to statistical and comparative procedures. The results obtained in the Treze de Julho neighborhood were more favorable in terms of water quality. The conditions were related to the incidence of diseases including identifying the communities. These communities reported that only type of water treatment that they have access is provided by DESO, and as the liquid comes with different characteristics in these districts may be due to leakage and/or infiltration of the plumbing system of Augusto Franco. In Treze de Julho, condominiums can be taking some procedures related to the water tank and the use of artesian wells. The neglect of the authorities before the existence of sources of contamination easily perceived in these addresses can result in public health problems.

Keywords: water quality; comparative study; Aracaju-Se

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## 1. INTRODUCTION

Water is an essential element for living organisms that inhabit this planet. Unfortunately this natural resource is still used unreasonably by many and this leads to the coexistence of people wasting about seven liters and half in a simple act of brushing the teeth with the tap running while others live with scarcity. In 1994 in 26 countries some 250 million people have faced this unfortunate reality [1] which is also composed of hunger, misery and death.

This disparity is also seen in homes, water is used for many purposes which depend on factors such as culture, financial aspects, eating habits, climate, etc. That is, its use is not uniform: while 4% of the world population uses more than 300 liters per person daily, two-thirds spend less than 50 liters per person [2].

In cities, the tap water is submitted to treatment processes that include the extraction of organic and inorganic materials and also organisms that can cause diseases. This is usually completed with the placement of chlorine to prevent the growth of bacteria, viruses etc.

But even the treated water may not be totally free of contamination because of internal pressure variations that occur in the pipe may cause leaks that allow infiltration of contaminants [3].

So the quality of water to a population is related to characteristics that are defined by the use of obligatory standards established by competent agencies that must be strictly followed and monitored to enable communities to appropriate water intake [2]. To request the consumer himself to make this control is not only an incorrect posture is a risk to health, since their knowledge about the risks involved and what he can do are limited or virtually nonexistent, making it required greater attention and responsibility by governments [4].

Several problems are encountered in relation to qualitative and quantitative aspects of water supply. A considerable portion of the population is supplied with possibly contaminated water because it uses alternative sources or found in areas with disabilities to obtain it. The groups often classified as needy or poor, socially identifiable, spatially definable and therefore are considered at risk regarding pathologies transmitted by contaminated water because they are more susceptible to it [2]. Even in more developed areas, due to natural population growth and water contamination by chemicals, the supply of drinking water and in good quality becomes increasingly difficult and more expensive [5].

The absence or lack of access to water is at risk, because it promotes increased incidence of acute and chronic infectious diseases. For this is considered factors such as distance and time spent by the water source, and if the volume collected satisfies the demand. In water quality among the determinant factors that can be cited is the way it is collected, its transport and storage and the presence of pathogens at the source [6].

This study aimed to establish a comparative picture among the diseases caused by ingestion of contaminated water in two districts of Aracaju-SE: the lower middle class community of Augusto Franco and upper middle class from Treze de Julho. Justified by information released by local media as to its color and that unqualified people worked in their treatment and control and because water can be a way of transmission of diseases, especially those relating that must be intestinal tract, such as amoebiasis basilar dysentery. The determination of the presence of pathogens in source highlights the health risks and the identification of the etiologic agent indicates the source of contamination. To reverse this situation is necessary joint actions in the sectors of habitation, sanitation and health for the promotion and protection of health of the local population [7, 8].

It is necessary to review the concept that water is abundant and always available because it strictly depends on how to use and preserve this resource. The more polluted, the greater amount of chemicals will be needed to make it potable for consumption. The sewage, and detergents contain nutrients such as phosphorus, which in excess cause eutrophication of water bodies and consequent proliferation of algae, which can cause bad odor and bad taste in the water even after treatment. The solution to this problem is to decrease the amount of nutrients discharged into rivers obtained from a previous treatment.

The population needs to think about the consequences of their interactions with the environment. Pollute water resources means difficult to maintain our existence and the others that will come, increased costs, reduced recreational areas and urban aesthetics that are related to sense of well-being at last brings harm not only economic but also biological and psychological life [9].

## **2. MATERIALS AND METHODS**

This is a Field research a qualitative approach, describing the complexity of the problematic and the interaction of variables without disregarding the quantitative data. As an instrument of data collection was applied a structured interview to twenty-five people from each districted selected (Augusto Franco and Treze de Julho) and the collected data received characteristic treatment of comparative and statistical procedures. The sample was formed in the two communities of eleven people (44%) were male and fourteen (56%) were female.

### 3. RESULTS AND DISCUSSION

In the Augusto Franco district, 84% of people use as source the Sergipe Sanitation Company (DESO) and the remaining, 16%, seek water in a river nearby. Among the interviewed 56% classified the water as bad, in this index there is inconsistency or lack of knowledge about the characteristics that good quality water must present since only 16% reported that it was colorless (Yellowish-44%-and muddy 40%), possibly the ones that take the water in the river. Regarding only the ingestion 20% use the water always and in their various occupations and 80% do not drink, they must be included among those who feel the difference in color and / or is capable to afford the expense of the daily use of mineral water. Only 16% indicated the existence of a high incidence of water related diseases. In identifying these diseases, the community has demonstrated a good level of information citing dermatitis (28%), vermin (44%), diarrhea (16%) and dengue (12%) unfortunately is not the case with the use of primary care with water since 72% do not take any action and only 28% use filter. 16% said that there is source of contamination near his residence and that the authorities do nothing to solve the problem. The quality of water for the population is terrible considering that 84% point between the water with yellow coloration and muddy and the color may reflect the presence of contaminants accompanied by pathogens creatures.

In Treze de Julho 76% of the population use water supplied by DESO and the rest is unaware of the source. Among the interviewed 84% rated as good quality water, in this index was also observed inconsistency or lack of knowledge about the characteristics that good quality water should have because 24% said that the water was yellow. Regarding only the ingestion 12% use the water always and in their various duties. Despite water conditions is more favorable than that of Augusto Franco a higher percentage (24%) indicated the existence of a high incidence of diseases hidrotransmissíveis. In identifying the incidence of diseases transmitted by water in their community they demonstrated a good level of information citing dermatitis and verms (48%) and diarrhea (16%) unfortunately the same was not observed in the use of primary care related to water since 72% don't take any care and 28% use filter. 12% said that there is a source of contamination close to his home and report on the neglect of the authorities. The quality of water for the population appears to be of good quality.

### 4. CONCLUSION

It can be seen that the results obtained in the neighborhood July Thirteen were more favorable in terms of water quality. The conditions were related to the incidence of diseases including the communities identifying them. They reported that the only way of treatment of water that they have access is provided by DESO and how it comes with different characteristics may be due to leakage and infiltration of the plumbing system of Augusto Franco e Treze de Julho condominiums may be taking some action regarding water tank and /or the existence of artesian wells. The disregard of the authorities before the existence of sources of contamination easily perceived can result in public health problems.

It cannot be ignored that even though the water is not colorless it may compromise health, because it points to the possibility that the water is not within the specifications required to make it proper for consumption [10]. This data suggests the need to conduct analysis in number and periods established to allow evaluation of its microbiological quality because the water can carry diseases and therefore people should be aware of factors that can negatively affect its quality.

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