

Epidemiological analysis regarding a BHU (basic health unit) in the region of Maringa–Parana–Brazil

Abstract

The objective of this study was to verify the demand of services and medicines at a basic health unit in the city of Maringa from the estimate of the frequency of excess weight adults estimated in 53.8%, of which 18.9% are overweight. It was a descriptive study, focusing on the epidemiological context of BHU, the percentage statistics of the frequency of treatments in relation to chronic diseases of the region, the most distributed medications, the nutrition picture of children in care of the BHU, the main dental procedures occurred in the unit and the percentage of alcoholists in the region. The results showed a large number of cases of diabetes and hypertension in the BHU with a rate of 4.2% and 13.2% of prevalence respectively. The most sought remedies in this unit are precisely those related to these diseases with 58.95% for those of hypertension and 12.76% for those related to diabetes. And with all this study and result, we can see that the situation in this small region is not out of the expectation, since we know that Brazil lately is undergoing an epidemiological transition, associated with diabetes and hypertension.

Keywords: basic health unit, diabetes, hypertension, diabetes

Volume 8 Issue 4 - 2018

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Received: January 02, 2018 | **Published:** July 25, 2018

Introduction

The Unified Health System (SUS) was founded in 1988 by the Brazilian Federal Constitution, based on the set of actions and services provided by federal, state and municipal public institutions, led by the Government. With the consolidation of SUS, public health began to be seen with a greater degree of importance, and with that, the Health Care Network was developed, which aims to approach the population seeking greater effectiveness in the care. Within the Health Care Network, there are the Basic Health Units (BHU), which guarantee practicality and quality, as well as facilitating the population's access to health. BHU has multiprofessional teams made up of health professionals such as physicians, psychologists, pharmacists, dentists, physical educators, nurses, biomedicians, who work together to contribute to a complete care to ensure the efficiency of the health system.

The current health situation in Brazil, even with the implementation of SUS, is not in line with public health plans that should be accessible to all. According to Madeiro,¹ Brazil faces a crisis in public health that shows itself in three basic aspects: the deficiency in physical structure, the unavailability of materials, equipment and medicines, and it is also devoid of human resources. Many BHUs have physical structures in unfortunate situations; it is devoid of professionals, laboratory equipment, lack of basic medicines, besides the difficulty of access and inefficacy of the services present in the units. In addition, due to this precariousness, many of the patients who need a quick diagnosis end up waiting, which can lead to a complication in their clinical condition, or also in the desperate search for care, which is often inefficient, for the patient.

In this sense, when analyzing the epidemiological panorama of the country, that is the correlation of the diseases that most affect the population, the prevalence of non-communicable chronic diseases is verified. This fact is evidenced by the epidemiological transition that occurred in Brazil, described by Schramm,² in which there was

an increase in the number of deaths due to chronic diseases and the decrease in deaths due to acute diseases, a picture justified by the coverage of vaccines, caring for personal and collective hygiene, coupled with physical inactivity and poor eating habits.

Although many studies focus on the issue of Brazil's epidemiological picture, there is a gap regarding the profile of care, demand for medicines and the daily routine of a basic health unit; therefore these facts justify the proposal of the present study, and, in this context, this article dealt with the epidemiological picture of one of the BHU in the metropolitan region of Maringá. Thus broadening the knowledge on this subject, opening a new perspective of research, to contribute to the state of the art, looking at the demand, this reflects the general health of the population.

Methodology

The present study was characterized as sectional descriptive study. Descriptive statistics were obtained using the software Spss version 20. Researchers did not interact with the population, what ruled out the need for authorization from the ethics committee to conduct research with humans. We analyzed the official documents offered by BHU, tabulated the numbers and analyzed for this research. The data were presented in absolute and relative frequency. The data collected refer to a municipality with 12 thousand inhabitants, with excess weight estimated for the Brazilian population in 53.8%, of which 18.9% are overweight.³ This district was subdivided in two areas and the documentary analysis was referring to the reports of January to May of 2016 in relation to the remedies of one of these subareas. From the obtained data, a set of these was formed, making possible the establishment of an epidemiological profile of the region. After the collection, the data was analyzed by a multi-professional team made up of researchers from the areas of Biomedicine, Physical Education, Pharmacy, Dentistry and Psychology. The analysis statistical of the data of treatments occurred in level descriptive, frequency and percentage level, presenting data only in absolute and

relative numbers. The results of this research were presented through tabulation of information from frequencies and percentages. All data were provided by the administration of the Basic Health Unit and separated for analysis according to the area of performance of each member of the team.

Results

The data verified with the BHU in question will be presented below.

According to Table 1, total attendance in the basic unit was 583 in the period evaluated from January to May 2016, with a summation of 330 consultations due to complications of diabetes, 570 related to arterial hypertension and 7 to leprosy. Considering that the same patient may have comorbidities, it may have been accounted for more than once for different diseases. Thus, among the 7155 inhabitants of the region,⁴ Table 2 demonstrates the prevalence of approximately 4.2% of registered diabetics, of which almost 70% are followed up; approximately 13.2% of hypertensive patients, of whom approximately 63% are followed up; with one case of tuberculosis accompanied and two recorded cases of leprosy, of which only 1 is followed up.

Table 1 Total consultations related to diabetes, hypertension, leprosy and tuberculosis carried out from January to April 2016

Diseases	Number of queries
Diabetes	330
Arterial hypertension	570
Tuberculosis	0
Leprosy	7
Total	583

Table 2 Total number of patients affected by diabetes, hypertension, leprosy and tuberculosis in May 2016

Diseases		Number of patients	Percentage (%)
Diabetes	Password:	298	4,2%
	Accompanied	211	2,9%
Arterial hypertension	Password:	945	13,2%
	Accompanied	597	8,34%
Tuberculose	Password:	1	0,01%
	Accompanied	1	0,01%
Leprosy	Password:	2	0,03%
	Accompanied	1	0,01%
Total number of patients enrolled	Registered	1246	17,41%
	Accompanied	810	11,32%
Total number of inhabitants		7155	100%

According to Table 3, 86 children aged 0 to 11 months and 29 days and 31 children aged 12 to 23 months and 29 days were weighed. There were no records of a malnourished child, representing 0% of occurrences.

Table 3 Total malnourished children according to BHU

Number of malnourished children	Heavy	Undernourished
0 to 11 months and 29 days	86	0
12 to 23 months and 29 days	31	0

According to Table 4, the most sought-after drugs in the UBS, which add up to a little more than 70% of the total, are the hypertension and diabetes drugs, accounting for the percentage of 58.95% and 12.76%, respectively. Then, with 6.36% are the medications for gastroesophageal disease; with 5.76% anti-inflammatories; with 5.5% cardiovascular; with 5.04% the medicines for hypothyroidism; with 2.33% analgesics; with 2.15% psychotropic; and finally, representing less than 1%, oral contraceptives and for the prevention of gout, with 0.69% and 0.47% respectively.

Table 4 Relationship of the use of medicines in the for the month of May, 2016

Drugs	Total	Percentage
Diabetics	27.695	12,76%
Psychotropic	4.67	2,15%
Arterial hypertension	127.948	58,95%
Cardiovascular	11.927	5,5%
Anti-inflammatory	12.495	5,76%
Hypothyroidism	10.94	5,04%
Oral contraceptive.	1.491	0,69%
Preventing Gout	1.01	0,47%
Gastroesophageal disease	13.804	6,36%
Analgesic	5.056	2,33%
Total	217.036	100%

Table 5 shows the main dental procedures performed during the period from 01/05/2016 to 05/30/2016. According to the Table 5, collection of material for laboratory examination, blood pressure measurement, and scraping, smoothing and supra-gingival polishing by sextant presented the highest percentage among the attendances, representing 6.19%, 2.75% and 2, 45%, respectively. In addition, there are preventive procedures, mainly against caries, and these are: collective action of supervised dental brushing, with 0.72%, application of a sealant per tooth, with 0.19% and topical application of individual fluoride per section, with 0.48% of the procedures. Finally, there are the main therapeutic procedures characterized by medication administration per patient, with 0.83%, restoration of deciduous tooth, with 0.25%, restoration of anterior permanent tooth, with 0.12%, restoration of permanent posterior tooth, with 0.45%, access to pulp and medication per tooth, with 0.15% and scaling, smoothing and supra-gingival polishing by sextant, with 0.65% of the procedures.

Figure 1 Major cases of diseases divided by regions of BHU. In the region 1, with a total of 77 families, there were 0 cases of alcoholism (ALC) and Chagas disease (CHA), 2 cases of physical disability (DEF), 24 cases of diabetes (DIA), 17 cases of mental

disease (DHS), 1 case of epilepsy (EPI), 6 pregnant women (GES), 72 cases of hypertension (HA), 0 cases of leprosy (HAN), malaria (MAL) and tuberculosis (TB). In region 2, with a total of 115 families, 5 cases of alcoholism, 1 case of chagas disease, 10 cases of physical disability, 50 cases of diabetes, 4 cases of mental illness, 1 case of epilepsy, 4 pregnant women, 123 cases of hypertension, 0 cases of leprosy, malaria and tuberculosis. In region 3, with a total of 70 families, 2 cases of alcoholism were registered, 0 cases of chagas disease, 5 cases of physically handicapped, 20 cases of diabetes, 6 cases of mental illness, 1 case of epilepsy, 2 pregnant women, 65 cases of hypertension, 1 case of leprosy and 0 cases of malaria and tuberculosis. In region 4, with a total of 134 families, there were 15 cases of alcoholism, 2 cases of chagas disease, 4 cases of physically handicapped, 56 cases of diabetes, 5 cases of mental illness, 1 case of epilepsy, 6 153 cases of hypertension and 0 cases of leprosy, malaria and tuberculosis. In region 5, with a total of 63 families, there were 3 cases of alcoholism, 0 cases of chagas disease, 4 cases of physical disability, 23 cases of diabetes, 6 cases of mental retardation, 0 cases of epilepsy, 7 pregnant women, 66 cases of hypertension, 2 cases of leprosy and 0 cases of malaria and tuberculosis.

Table 5 Main dental procedures in the Basic Health Unit from 01/05/2016 to 05/30/2016

Procedures	Quantity	% in population
Collective action of supervised dental brushing	61	0,72%
Application of sealant per tooth	16	0,19%
Topical Application of Fluoride Individual by Section	41	0,48%
Collection of material for laboratory examination	525	6,19%
Medication administration per patient	70	0,83%
BP measurement	233	2,75%
Resting of deciduous tooth	21	0,25%
Previous permanent tooth restoration	10	0,12%
Restoration of posterior permanent tooth	38	0,45%
Access to pulp and medication per tooth	13	0,15%
Supra gingival scaling, smoothing and polishing by sextant	208	2,45%
Scraping, subgingival smoothing by sextant	55	0,65%
Total	1.291	15,23%

Figure 2 refers to the percentage of cases of alcoholism in the registered population, highlighted the category observed in Figure 1: alcoholism. Among the 459 families registered, 25 cases were registered, representing an approximate frequency of 5.44% alcoholics in the population.

Discussion

From the results obtained in the research, we can highlight two non-contagious chronic diseases with higher prevalence: arterial hypertension and diabetes, as well as two infectious diseases that appear in the region with a much lower quantity: leprosy and tuberculosis. The two chronic diseases, hypertension and diabetes, according to the World Health Organization (WHO), are among the most deadly in Brazil, showing a much higher index when compared to infectious diseases, and may conclude that the population has been careful more in relation to the infectocontacting diseases than in relation to the chronic diseases, it was made visible when comparing them. A study conducted since 2006 by the ministry of health entitled "Vigitel" tries to monitor the frequency, distribution and evolution of the main factors that determine NCDs in Brazil. For this purpose, interviews were conducted with 53.210 people by telephone in each of the 26 capitals of the country plus the federal district. This form of collection was made to construct a sample that reflects the population situation of the country. In the last publication of the data obtained in 2016, it was found that the frequency of excess weight adults estimated for the Brazilian population in 53.8%, of which 18.9% are overweight. Obesity doubles from 25 years of age and is higher among people with lower educational level. Between 18 and 24 years the prevalence is 8.5%, 25 to 34 years this index reaches 17.1%, from 35 to 44 years old 22.5%, from 45 to 54 years old 22.8%, from 55 to 64 years 22.9% and from 65 years onwards 20.3% VIGITEL.³ The frequency of adults who reported medical diagnosis of hypertension ranged from 15.2% in Palmas to 29.2% in Porto Alegre, with total weight excess data of 48.0% and 55.3%, respectively (Brazil, 2015). The frequency of adults who reported previous medical diagnosis of diabetes varied between 4.1% in Palmas and 9.5% in São Paulo, both of which had overweight rates of 48.0% and 51.9%, respectively (Brazil 2015). Several other factors related to the contribution of the CNCD evolution were analyzed as the smoking rate and dietary habits of the population, among others, and can be visualized in the publication "Vigitel Brasil 2014 Vigilance of risk factors and protection for chronic diseases by telephone inquiry".

Regarding the data obtained in the BHU studied: as shown in Table 1 & 2, the number of consultations for chronic diseases is much higher when compared to the consultations for the infectocontagious pathologies, being evident by means of the Figure 1 that the greater incidence in the region occurs in cases of hypertension with 13.2% of people registered, followed by a high incidence of diabetics with a rate of 4.2%. In the period of 2016 (records of the month of March), the-BHUs of the municipality in which the studied regions are located registered a total of 26,099 hypertensive patients and 7,878 diabetic patients (data from the health department) with an estimated rate to the population served by the public system of 11.94% and 3.60% respectively. In total there were 218,637 people registered in this period, which is equivalent to 55.0% of the population estimated for 2015 in the municipality (IBGE 2015). In January 2010, when the last census was done, the population was 342,310 thousand, the estimated number for 2015 was 397,437 thousand people (IBGE). This average of cases shows a high prevalence of NCDs not only in the BHU studied but also in the other units that cover the entire municipality and its districts.

In addition, in relation to diabetes and hypertension, the National Health Plan (PNS) estimated that in Brazil 6.2% of the population of 18 years of age or older reported positive medical diagnosis for

this, which is equivalent to a contingent of 9, 1 million people, for the same population group were registered 31.3 million people with a positive diagnosis for hypertension which corresponds to 21.4% of the total (IBGE 2013). These data demonstrate that it is an issue to be addressed not only in the BHU region, but in the whole of Brazil, because it affects a large part of the population. The cases of arterial

hypertension and diabetes follow a constant in relation to the number of cases, observing that the proportion of patients in the BHU do not resemble only the one of the municipality, as well as to other localities. However, it is still less than the average presented in the last national survey conducted in 2013 by IBGE.

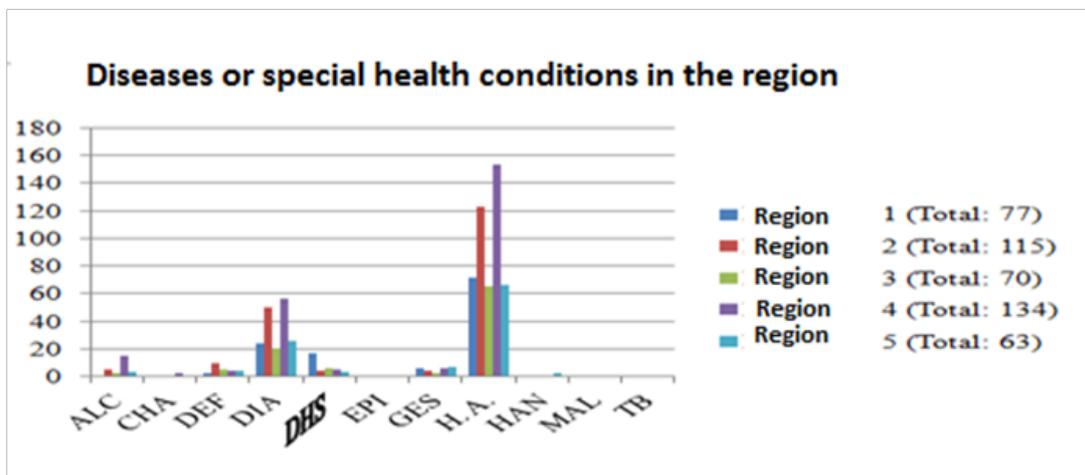


Figure 1 refers to diseases recorded in the regions of BHU.

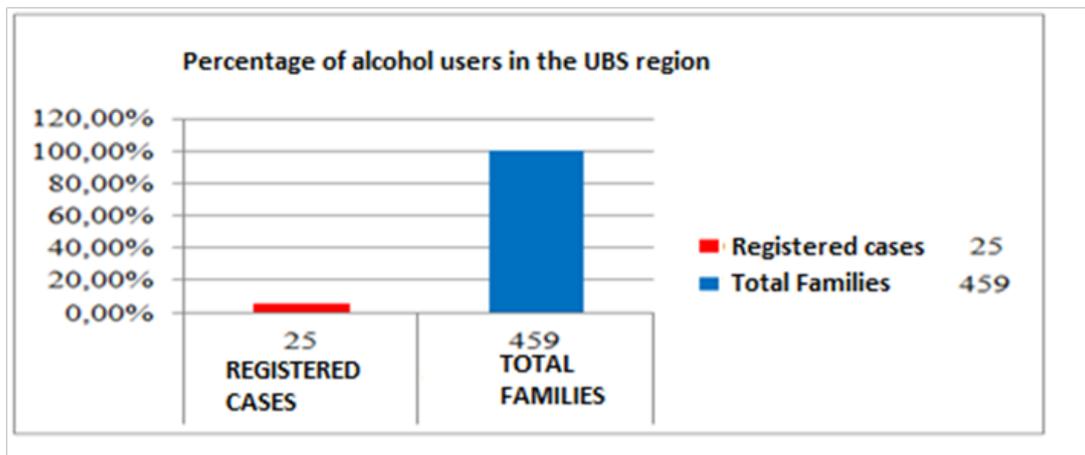


Figure 2 Percentage of alcohol users in the BHU region.

Even at a lower rate than the national rate, they are still the most prevalent diseases in the region. Analyzing the situation, it is important to highlight how necessary is effective preventive work with the population, controlling the deleterious action of these diseases in the body, since the hypertensive suffer complications such as: angina that can cause the infarct; clogging or tearing of a vessel that can lead to stroke; in addition to complications in the kidneys (Brazilian Society of Hypertension - SBH). In the case of diabetics, they may develop several complications such as atherosclerosis, severe coronary disease, multiple microcirculatory lesions, cataracts, increased susceptibility to infections, hypertension,⁵ besides oral alterations, periodontal disease, considered by some as the sixth chronic complication of diabetes.⁶ Due to this, the control with the use of medicines and the accomplishment of activities in order to improve the quality of life are fundamental to reduce the mortality rate in these cases. However, primary health care should prioritize multidisciplinary treatment and prevention, focused on intervention and behavior change of the population, to the detriment of the work

only of orientation of the population.

In relation to the highlighted infectocontacting diseases, leprosy and tuberculosis have a lower incidence rate in the region. Both diseases are caused by mycobacteria, the first of the genus leprae and the second of the genus tuberculosis. Leprosy manifests mainly through dermatological and neurological signs and symptoms and may be local or systemic. This disease can cause damage to the peripheral nerves, which can lead to deformities that are responsible for the stigma and prejudice inflicted on the patients.⁷ Man is recognized as the sole source of infection (reservoir), although naturally infected animals have been identified. Contamination occurs through a diseased person, who has the untreated Hansen bacillus, which eliminates it to the outside environment, infecting susceptible people.⁸ This disease is curative and the treatment adopted by the World Health Organization (WHO) and the Brazilian Ministry of Health (MS) is polychemotherapy, as well as suppression of reactional outbreaks, prevention of physical incapacities, physical and psychosocial rehabilitation.⁹

The prevalence of this disease has been declining over time and its eradication increasing in several countries of the world. However, Brazil ranks second in the number of patients in the world, with approximately 77,676 cases and a detection rate considered high.⁸ This can be explained by the prejudice inflicted on patients due to the characteristics of the wounds of this pathology, making the patient feel often repressed to seek specialized medical care.⁹

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, also known as Koch's bacillus. This disease is spread through the air through saliva droplets contaminated by bacilli and can manifest itself in two clinical forms: in the lungs - the vast majority - and also in the kidneys, bones and meninges.¹⁰ According to 2006 WHO data, 80% of confirmed TB cases are distributed among 22 countries, ranking Brazil in the 17th place.¹¹ The prevalence of this disease can be explained by the patient's difficulty in completing the therapy and the resistance acquired by the microbacteria to the drugs used.¹² This fact, which may be related to patients' lack of information, considering the low socioeconomic status of the region, however, it is observed that the prevalence of this disease in the studied district is low.

Table 3 shows that in the area covered by the BHU there are no undernourished children in the described ages, however, the data could be more accurate if the entire region of the district were covered by BHU care. The data obtained show that malnutrition is not a problem found in this region, and in Brazil has been gradually reduced, so the problems faced may be linked to obesity, which was 48.5% in 2011, and went to 52.5% in 2014, according to data collected by Vigitel. Another major problem is sedentarism, and to combat it there is the Health Academy Program, which has 1,568 poles with equipment and qualified professionals. In addition, the new Food Guide for the Brazilian Population and the Brazilian Regional Foods book of the Ministry of Health have been encouraging people to opt for meals instead of fast food.

Based on the research done and as shown in Table 4, the most sought after remedies are for people suffering from hypertension and diabetes. Systemic arterial hypertension (SAH) is a chronic disease, with risk factors for the development of cardiovascular, cerebrovascular and chronic kidney diseases, which can lead to death, being a serious public health problem. The main factors that lead to the failure of this treatment are: inadequate use of medication (pharmacological treatment), behavioral changes, deregulated feeding, scarcity in physical exercises. Therefore, hypertension is a disease that has reached a large part of the Brazilian population, since it does not only depend on the professional, it also depends on the interest of the patient in choosing to improve their health. There is a strong link between obesity and diabetes and hypertension. With WHO research and projections, by 2025 the number of overweight children will be absurdly, reaching a total of 75 million. Remember, it is not only in children. Being overweight can progress to other health problems due to the accumulation of fat and sugar. Brazil has been presented in the last decades a new epidemiological profile, being the reduction of the mortality by noncommunicable diseases, it is known that hypertension, high cholesterol, overweight, physical inactivity is among the main risk factors for most of these diseases. The use of medications can have several adverse effects and may cause a new symptom on the carrier. According to the data collected in the Basic Health Unit under study, they are: captopril, atenolol, propranolol and losartan. The adverse effects of these drugs range from headaches to chest pain (SBH, 2013).

Currently, Diabetes affects 74% of the Brazilian population. Diabetes can be classified into 4 categories: type 1 diabetes mellitus, type 2 diabetes mellitus, other specific types of diabetes is gestational diabetes. However, the most frequent types of diabetes are type 1 and type 2 diabetes. The main medicines for the treatment of this disease in the Basic Health Unit under study are medicines such as insulin, which is directly injected, and also by tablets, such as metformin, which can cause side effects such as nausea, vomiting and diarrhea.

When analyzing Table 5, which refers to the dental procedures, performed in the Basic Health Unit, in relation to the dental care provided in basic units, according to Jaccotted, altogether, 47,179 procedures were performed in the oral health services, and the restorations (42.4%) and supra-gingival scrapings (33.4%) were the most frequent. The most prevalent needs among the population aged 15 years or older were supra-gingival periodontal scaling (46.0%) and restorative procedures (39.7%). It is important to emphasize that the FHS (Family Health Strategy), because it is implanted in the great majority of areas of greater social vulnerability, presents families at risk, with accumulated health needs, among them, the dental demands, especially in relation to the caries disease, whose consequences may result in endodontic treatment.¹³ In relation to this, regarding the preventive procedures, there was a difference in the proportion of the attendances of the FHS and the traditional BHU. Preventive care occupies the attention of dental surgeries working mainly in the FHS with more than 20% of their workload, whereas in traditional BHUs it represented only 9.1% in 2011 and 6.4% in 2013.¹⁴

Finally, when we look at Chart 2, we have a notion of cases of alcoholism in the BHU region. Alcoholism is a problem that impacts both on the individual's personal and social lives. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM), a person is characterized as an alcoholic when he presents "a problematic pattern of alcohol use, leading to clinically significant impairment or suffering, manifesting by at least two criteria." About 5.44% of the registered residents, in the area covered by the BHU, fit two or more of the criteria in the DSM-V. Exaggerated consumption of alcohol causes changes in the functioning of the liver, digestive tract, heart, blood, muscles, and endocrine glands. When frequent, it leads to physical and psychic illnesses, such as cirrhosis of the liver, dementia, hallucinations and anxiety disorders, disorders of sleep disturbance beyond depression, which can lead to death.

Diagnostic manuals characterize alcoholism as a disease, but, viewed from a behavioral perspective, it is safe to use these manuals. According to Araújo⁸ Diagnostic manuals exhibit three main characteristics in their classifications: emphasis on the topography of the response; nomothetic analyzes and internalist character. Behavior Analysis, based on the philosophy of Radical Behaviorism, goes against these three precepts. It emphasizes the functionality of behaviors rather than topography of responses; the idiographic analysis of behaviors instead of nomothetic analysis, and externalism rather than internalism.

For a behavioral analyst, it is necessary to analyze phylogenetic or ontogenetic contingencies, and it is not necessary to classify it as pathology, since there are adaptive characteristics within the contingencies of behavior. The behavioral repertoire determining how pathological is 'learned' and maintained in the same way that other behavioral streams are maintained. However, contingencies linked to such behaviors may arise from facts not experienced by other individuals, as well as cause suffering and present danger to

the individual or others around him. In this sense, it is necessary to understand that the behavioral repertoires are constituted of singular form of each individual, thus, besides the biological one, in which one admits that the chemical agents present in the alcohol influence in the control of the behavior of excessive consumption.

That is, the individual when consuming alcoholic beverages, is not moved by an “internal force”, but by the variables that control their behavior. Through a functional analysis, which Haynes and O’Brien¹⁵ define as “the identification of relevant, controllable, causal, and functional relationships applicable to a specific set of target behaviors for an individual client” (p.654), it is possible to identify the conditions under which the behavior of drinking excessively is carried out, thus being able to manipulate certain conditions to diminish, even extinguish, the frequency of this behavior.¹⁶⁻²⁸

Conclusion

At the end of the study, it was evident that they are consistent with the epidemiological transition that Brazil has undergone in recent years. Since when we analyze the number of consultations and medications offered at the BHU, it is verified that the greatest amount of supply of both are related to diabetes and hypertension, observing few cases of acute diseases. It is also important to mention that the amount of drugs given to the population is so high that it is disproportionate to the demographic density of the region, that is, when reflecting on this issue, it is inferred that almost all adults in the locality are under or use of controlled medications. That is, drugs that due to their powerful action in the body, should be used under strict supervision. Finally, BHU and its professionals as they have a closer and daily contact with the patient, have the possibility to work on disease prevention, using lectures on food education, physical exercise, psychological, dental and care assistance Social. What applied research has pointed out is the multiprofessional work, based on practical intervention and behavior change, broadening the issue of orientation. These structures, if valued and reorganized, show a great potential to help make Brazil healthier.

Acknowledgments

None.

Conflicts of interest

The author declares there are no conflicts of interest.

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