



## Oral Health Evaluation of Drug-Dependents Adolescents on Rehabilitation Process at a Public Hospital

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### Abstract

**Objective:** To evaluate oral health and to trace the epidemiological profile of adolescent patients hospitalized in the detoxification ward of the University Hospital of the West of Paraná- Brazil, outlining its epidemiological profile.

**Methods:** An exploratory, descriptive study on the state of oral health and socioeconomic status of drug-dependent adolescents in detoxification process was carried out at the Hospital Universitário do Oeste do Paraná. Thirty-three subjects, aged between 12 and 17 years, participated in the study in the period of 2014 and 2016.

**Results:** It was observed that the majority of adolescents who participated in the research were male 66.7%. The mean age found for the onset of drug use was 14.5 years, 69.7% had divorced parents and 54.6% had low socioeconomic status. Regarding oral health, the great majority, 69.7%, had some type of periodontal impairment and only 30.3% were free of dental caries.

**Conclusion:** The epidemiological profile was mostly characterized by male patients, aged 11 to 16 years, low income and divorced parents at the time of admission. It was observed that although there is a follow-up of the dental team during the period of hospitalization and rehabilitation in the University Hospital of the West of Paraná- Brazil, the oral health conditions of internal adolescent patients are unsatisfactory.

**Keywords:** Health Profile; Drug Addiction; Adolescents.

### Introduction

Oral health problems are among the most prevalent issues associated with drug addiction, and requires multidisciplinary attention [1]. The drug-dependent has his/hers sense of reality changed, leading to social exclusion and motor disability. Regarding oral health, salivary flow changes can be observed, such as presence of halitosis, soft tissue lesions (i.e. leukoplakia, keratosis and

angular cheilitis). Tooth damage is usually observed on these individuals and include: periodontal disease, sensibility decrease, bone loss and even edentulism [2-4].

Others [2,4,5] also reported depressive symptoms, bipolar disorder, anxiety, hallucinations and agitation in this population group. Besides poor dental condition, both xerostomia and

willingness to oral cancer were reported for marijuana's (*Cannabis sativa*) users [6]. In crack and cocaine addicts, the standard damage is tooth abrasion due to resulting euphoria it provides. It can be explained on norepinephrine's reception block by these drugs, increasing the amount of the neurotransmitter available on central system [7].

However, these same changes can be different according to the examined population. For example, Colodel, *et al.* [3] reported that most recurrent alteration on research subjects was periodontal disease. Meanwhile, Machado, *et al.* [8] stated that the majority of its patients were not only absence of it but had any dental caries. This result also differs to the ones obtained by Costa, *et al.* [9], revealing that more than 70% of the individuals presented gingivitis, dental caries and dental loss. It is important to state that even with the drug abstinence the alterations remain – emphasizing the continued treatment need of a multidisciplinary team, according to the booklet published by W.H.O. [10] to the attendance of this risk group.

Addiction period is directly proportional to the decrease of oral health quality [9]. The association of tobacco and alcohol abuse is emphasized by Neville, *et al.* [11] as the main cause of oral cancer and predisposition to highly malignant diseases. Monitoring the patients is necessary once the lesions do not end with the stop of drug addiction – enabling the early diagnosis and treatment.

World Health Organization [10] acknowledges drug dependency as a multifaceted issue that requires many disciplines expertise attention. So, this approach can be applied to research, prevention and treatment. The analysis of oral implications is essential to the drug dependent rehabilitation just as the early diagnosis of malignant lesions inclined to development when exposed to chemical agents – justifying the presence of Dentistry on the rehabilitation process of this population parcel, especially.

Vieira, *et al.* [12] and Carlini, *et al.* [13] ascertained that adolescence is a development period when it trends to happen the first insights of alcoholic beverages or other drug abuse. For this reason, it is the focus of most studies and prevention programs. Many authors [14-16] reinforce the relevance of aid centers (i.e. Social-educational Units or Drug and Alcohol Psychosocial Services – CAPS/AD), and its supports to reestablish social interaction

and improving life/health quality – leading to an out of hospital assistance to the patients.

The chemical dependent presents an exacerbated inversion of values that emerge as long as the addiction installs. The search and consumption of drugs becomes the priority. Scholar abandon, repeating a school year or expulsion converge to the low educational status tax between drug-abusers. It determines on a significant parcel of unemployment. In adulthood it leads to one of the principal risk factors associated to drugs – once it can lead to secondary issues such as criminality: individuals need money to sustain the addiction [14,17].

Variations between most prevalent ethnicity, age and motivation to initial drug abuse, educational status, frequency and most used substance could be observed through the authors mentioned above. The importance and seriousness of oral health problems among drug abusers necessitates making comprehensive dental care programs available to them. These programs should be integrated into general health care services. Moreover, it should take advantage of multiple approaches involving education, prevention, and treatment [18].

Therefore, the aim of this research is to evaluate the epidemiological profile and the oral health in drug dependents at rehabilitation process in the University Hospital of the West Paraná – UNIOESTE, allowing the promotion of health, monitoring and reducing possible damages caused by drug addiction.

## Material and Methods

Exploratory, descriptive research on the state of oral health and socioeconomic status of drug-dependent patients in the process of detoxification. The study was carried out in the recovery ward of the chemical dependents of the Hospital Universitário do Oeste do Paraná, Brazil. Patients were selected according to the free and informed consent of those responsible and free will to participate or not in the inmate's research. The patient's data were obtained in two ways: together with his hospitalization records and with a questionnaire applied to the institutionalized - observing the history of dependence, systemic condition, previous hospitalizations for drug use, type of drug used, age of initial and current status, educational level, housing situation, family income, marital status of the parents and sex.

An intra-oral examination was also carried out to establish the epidemiological profile of all the patients participating in the study. The data were classified based on the table provided by the Municipal Secretary of Belo Horizonte available in the article by Machado., *et al.* presence/absence of gingival bleeding, presence/absence of soft tissue injuries - being complemented with evaluation of salivary flow in normal, diminished and exacerbated (quantified by observational examination), presence/absence of carious lesions as well as their locations.

Before the data were collected, the person responsible for the patient signed the Informed Consent Term. After following all the ethical recommendations, an intra-oral examination was carried out using the following materials: wooden spatula, lantern, mask, cap, goggles, lab coat, gloves and annotated in epidemiological odontogram. Data were collected by duly calibrated examiners, where epidemiological information was obtained and also related to the patient's oral history.

All the patients institutionalized in the Psychiatry ward of the Hospital Universitário Oeste do Paraná- Brazil, who agreed to participate in the study during the months of October 2014 to December 2014 and from September 2015 to May 2016, participated in the study. strike in the year 2015).

This ward is organized by periods of hospitalizations with vacancies for up to 10 patients who remain in detoxification for a period of not less than 25 days and a maximum of 30 days, making a total of 33 research subjects, 11 of the female gender and 22 of the male gender, aged between 12 and 17 years.

All were in the process of rehabilitation, assisted by a multidisciplinary team, with professionals from the following areas: Psychology, Medicine, Dentistry, Social Assistance and Nursing, Pedagogy, Occupational Therapy and Nutrition.

After the data collection, the questionnaires were entered in a spreadsheet created in Epi Info software version 3.5.1. Descriptive statistics of the data were made, and the frequencies for each of the study variables were calculated, calculating the statistical measures appropriate to the nature of each of them and tabulating these results. To verify the association between parents' marital status and age at onset of drug use, the Fisher Exact test was used with a significance level of 5%.

The research was approved by the Committee of Ethics in Research with Human Beings of the State University of the West of Paraná - UNIOESTE- Brazil, according to Resolution CNS 196. (Opinion 36882914.1.0000.0107).

**Results**

Research revealed a total of 33 research subjects, being 66.7% and 33.3% composed by males and females, respectively. Patients consisted of 14.5 years old in average, mostly between 15 to 17 years old (51.5%). All patients were within schooling age, with the majority at elementary school (78.8%) (Table 1).

| Variable             | n  | %    |
|----------------------|----|------|
| Gender               |    |      |
| Female               | 11 | 33.3 |
| Male                 | 22 | 66.7 |
| Age                  |    |      |
| 12-14 anos           | 16 | 48.5 |
| 15-17 anos           | 17 | 51.5 |
| Educational status   |    |      |
| Elementary School    | 26 | 78.8 |
| High School          | 07 | 21.2 |
| Parents' civil state |    |      |
| Single               | 03 | 09.1 |
| Married              | 05 | 15.2 |
| Divorced             | 23 | 69.7 |
| Widow/widower        | 02 | 06.0 |
| Family income        |    |      |
| Until 1 minimum wage | 03 | 09.1 |
| 2 to 3 minimum wages | 15 | 45.5 |
| 4 to 5 minimum wages | 03 | 09.1 |
| 6 to 7 minimum wages | 01 | 03.0 |
| Could not inform     | 11 | 33.3 |
| Living situation     |    |      |
| Own property         | 20 | 60.7 |
| Rental               | 11 | 33.3 |
| Shelter              | 02 | 06.0 |
| Total                | 33 | 100  |

**Table 1:** Numeric distribution and chemical addicts' adolescents on rehabilitation process, according to social-demographic variables. Cascavel-PR, Brazil, 2016.

Approximately 70% of inmates reported having started the addiction in the range between 11 and 16 years of age. The mean age of onset of drug use was 11.5 years (Table 2).

| Variable                                  | n  | %    |
|---|----|------|
| Age of onset of drug use                  |    |      |
| From 6 to 10 years                        | 10 | 30,3 |
| From 11 a 16 years                        | 23 | 69,7 |
| Types of drugs used                       |    |      |
| Combination up to 2 types of drugs        | 15 | 45,5 |
| Combination of more than 2 types of drugs | 04 | 12,2 |
| Previous hospitalizations for drug use    |    |      |
| 1 Time                                    | 24 | 72,7 |
| 2 Times                                   | 04 | 12,2 |
| 3 Times                                   | 03 | 09,1 |
| 4 Times                                   | 02 | 06,0 |
| Total                                     | 33 | 100  |

**Table 2:** Numerical distribution and percentage of drug-dependent adolescents in the rehabilitation process, according to drug use. Cascavel-PR, Brazil, 2016.

It was also observed that the majority of the institutionalized (72.7%) were in first hospitalization for detoxification. Most patients reported using up to two drugs. When using monodroga, marijuana was the most used. It was also reported that the addiction extended to an average of 4 years (Table 1 and 2).

As for schooling, most of the interviewees (63.3%) had incomplete first degree, while 15.2% had completed it. Approximately 21% of patients reported being in high school (Table 1).

Regarding family conditions, the majority of the interviewees lived in their own home (60.7%). Although a significant number did not know how to report family income, in 45% of cases the average income was between 2 to 3 Brazilian minimum wages. Most parents of the institutionalized (84.4%) were not conjugate at the time of admission (Table 1).

Regarding the patients' health, none reported systemic alteration. There is absence of oral soft tissue injury in the vast

majority (96%). Regarding oral health - although around 30% of the patients had healthy periodonts - it was found that the majority (54.5%) of the patients had a calculation associated with bleeding (or not) (Table 3).

| Variable  | n  | %    |
|---|----|------|
| Dental condition                                  |    |      |
| Presence of dental caries                         | 18 | 54.5 |
| Absence of dental caries                          | 10 | 30.3 |
| Dental fracture                                   | 03 | 09.1 |
| Dental restoration                                | 03 | 09.1 |
| Enamel hypoplasia                                 | 01 | 03.0 |
| Tooth abrasion                                    | 01 | 03.0 |
| Periodontal condition                             |    |      |
| Periodontal health                                | 10 | 30.3 |
| Gingival bleeding                                 | 04 | 12.2 |
| Presence of dental calculus                       | 10 | 30.3 |
| Presence of dental calculus and gingival bleeding | 08 | 24.2 |
| Presence of gingival bleeding and dental mobility | 01 | 03.0 |
| Soft tissue lesion                                |    |      |
| Absence   | 31 | 94.0 |
| Presence  | 02 | 06.0 |
| Salivar flow                                      |    |      |
| Normal  | 15 | 45.5 |
| Decreased   | 14 | 42.3 |
| Exacerbated                                       | 04 | 12.2 |
| Total   | 33 | 100  |

**Table 3:** Numeric distribution and chemical addicts' adolescents on rehabilitation process, according to dental condition, periodontal condition, soft tissue lesion and salivar flow. Cascavel-PR, Brazil, 2016.

The salivary flow presented a slight preponderance of the normal character in relation to the reduced - 45.5% representatives versus 42.3% (Table 3). Most of the inmates presented some type of abnormalities in the dental condition, with carious lesions present

in 54.5% of the studied population, 9% presented fractures, 9% had restorations and 30.3% had no carious lesion at the time of the examination (Table 3).

Table 4 presents the results of the association test between study variables: marital status of the parents and age of onset of drug use.

| Variables   | Association Test    | p-value | Significance* |
|---|---------------------|---------|---------------|
| Marital status of parentes x Age at onset of drug use | Fisher's Exact Test | 0.4841  | NS            |

**Table 4:** Association between variables: parents' marital status and age of onset of drug use. Cascavel-PR, Brazil, 2016.

\* NS= Not significant

### Discussion

Chemical dependents, besides its growing number of new addicts, are a population parcel that lacks of real accurate data regarding to his/hers real health condition. Drugs may cause unwanted effects. However, when the abuse is associated with multiple ones, it is difficult to determine which alteration is due to a single chemical responsible [19,20].

Costa., *et al.* [9] suggests this fact demands health professionals attention due to the need of drugs knowledge – and its possible effects on dependent's health caused by the substance interactions. Shekarchizadeh., *et al.* [18] and Ribeiro., *et al.* [2] suggest that among medical care, odontological educational and curative (when necessary) approach should be installed.

Socio-demographic profile was characterized by males, teenagers, with monthly family income between 2 to 3 brazilian minimum wages, with parents not married by the time of the detoxification process. Pratta., *et al.* [21] emphasize the crucial importance of familiar group on the individual's constitution. It is substantial to personality's determination and organization – besides its strong influence on singular behavior through actions and educational measurements experienced on family environment.

Most of this research subjects did not graduate from elementary school. It concurs to Capistrano., *et al* [16] findings: 79.6% of the interviewed did not finished high school. Falcão., *et al.* [19] also reported a low educational status sample (76.4%). A crucial point is that our study patients are still on schooling age – therefore, they'll have the opportunity to conclude it as soon as the end of detoxification process. Trace this epidemiological profile is requisite to knowledge the problematic reality on the studied city.

Concerning gender and educational status, this study's findings agrees with the ones described by Borini., *et al.* [22], Colodel., *et al.* [3] Monteiro., *et al.* [23] and Falcão., *et al.* [19]. Average age on this population parcel coincide with the data obtained by Costa., *et al* [19]. Tavares., *et al.* [24] demonstrated more than 50% of the parents were not married by the time of that survey – going along with our study results (70%).

Brazilians students are not among the most drug abusers when compared to the ones from South America, Europe and North America. On international comparative, Brazil presents low taxes of tobacco, crack and marijuana consumption, although it highlights being the one of the most inhalant abusers [13]. Majority of drug abusers (70%) declared the initial chemicals contact during pre-adolescence and teenage hood. This result agrees with the ones reported by Borini., *et al.* [22] (more than 80%) and Capistrano., *et al.* [16] (more than 40%), which also revealed initiation drug abuse period before 18 years old.

Patients reported major preference for using Cannabis – it was also mentioned by 14 (42.3%) of them using it without any other drug. As reported by Falcão., *et al.* [19] cocaine was used in association with another chemicals. In addition, most of the interns revealed preference for two drugs association (45.5%), as stated by others [4,14,19].

Tobacco use is responsible for many misfortunes regarding oral health, such as: dental staining, unsatisfactory restorations, post-surgical impairment, increase for oral candidiasis susceptibility besides causing halitosis [3,25]. Periodontal disease was substantially present in the research sample (84.4%). Treatment consists on elimination of the local irritants, culminating on oral health improvement – as long as there's a treatment follow up [2,3].

Decline of oral health quality is directly proportional to chemical dependency period [9]. Authors such as Colodel, *et al.* [3] and Ciesielski [4] reached poor oral health conditions (70%) – which corroborates with the present research. Absence of oral health was noted on most of the participants: 54.5% had carious lesions and 69.7% presented periodontal disease.

Most recurrent alterations found on this research are, in decreasing order: carious lesions (54.5%), dental calculus and associated with gingival bleeding (30.3%) and both dental restoration and dental fracture were found on 9% of the patients. Halitosis could be observed in all interns and there were subtle preponderance (45.5%) for the normal salivary flow in comparison to decreased one. This result agrees with Falcão, *et al.* [19] – which also opposes to literature's majority: it's richly reported decrease of the salivary flow on drug addicts. This result's deliberation could be explained due to the short period of exposure to chemical agents of our research subjects.

Regarding dental caries, our findings coincide with Pedreira, *et al.* [26] Colodel, *et al.* [3] studies: this lesion was observed on the larger part of the individuals. Average of years of chemical addiction on this research is low when compared to other studies – 4 years. Peixoto, *et al.* [14], for example: the average of usage is 18.1 years. Falcão, *et al.* [19] reported 84.3% of patients were abusers for more than 5 years.

Tooth abrasion was found in only one intern just like soft tissue lesions. It opposes from the data obtained by the literatura [4,9,19]. A possibility is seen by the preference on this research subjects for central system depressive drugs (Cannabis) as well as their ages been inferior compared to the reported on the named studies.

Analyzing association between the variables of premature use of drugs and parents civil state, studies such as Dietz, *et al.* [27] revealed family interactions as a considerable factor for the teenager's search to chemicals consumption. Moreover, they affirm family as a private institution. Passive, nowadays, of many arrangements – influencing the way young people react to free drug offer by society. However, our study was not able to perform any relevant statics association between these variables.

## Conclusions

Unsatisfactory oral health conditions were found in most of the patients at the University Hospital of the West Paraná – UNIOESTE, mainly because of carious lesions and periodontal disease. The inclusion of a dentist on the multidisciplinary attendant team is essential for the rehabilitation process of drug dependents. It aims to elaborate a treatment plan, seeking the health promotion and protection of this individuals – and when necessary, providing clinical treatment and referral, continuing the rehabilitation process according to the patients' complexity.

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