doi: http://dx.doi.org/10.11606/issn.1679-9836.v99i4p342-349 Rev Med (São Paulo). 2020 July-Aug;99(4):342-9

Psychoactive substance use at an Emergency Department in Childhood and Adolescence Psychiatry Service in Belo Horizonte

Uso de substâncias psicoativas em Serviço de Urgência em Psiquiatria da Infância e Adolescência de Belo Horizonte

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Chaves ACM, Ferreira ACBM, Lacerda MAS, Navarro MS, Campos GP, Tostes JPV, Gandra ALS, Campos AMFS, Cunha LR, Machado MCL. Psychoactive substance use at an emergency Department in Childhood and Adolescence Psychiatry Service in Belo Horizonte / *Uso de substâncias psicoativas em Serviço de Urgência em Psiquiatria da Infância e Adolescência de Belo Horizonte*. Rev Med (São Paulo). 2020 July-Aug;99(4):342-9

ABSTRACT: Introduction: The use of alcohol, tobacco and illicit drugs by children and teenagers is a growing public health problem worldwide. The increased prevalence of substance use was associated with higher rates of anxiety, depressive symptoms and other psychiatric disorders, as well as a rise in mortality and violence rates. Objective: To analyze the prevalence of drug-related care at a Childhood and Adolescent Psychiatric Emergency Department in Belo Horizonte and to determine the sociodemographic profile of these patients. Methods: This is a cross-sectional study conducted through the review of medical records of patients who sought an emergency service of child mental health during the period of one year. A comparative analysis of strategic variables was performed using Pearson's square test of Fisher's exact test. Student's T Test was used for continuous variable. Results: data from 2255 medical records were assessed. A prevalence of psychoactive substance use of 17.7% of the appointments was found. The most used drug was marijuana (14.1%), followed by cocaine (7%), alcohol (5.7%), tobacco (4.2%), solvents and inhalants (3.6%) and crack (1.7%). Higher consumption was observed in men, age 15-17 years and brown ethnicity. Conclusions: A significant prevalence of drug use was observed among child and adolescents. It is possible to assume that the real prevalence is even higher, since it is believed that the real percentage of young people who use these substances is greater than the portion that arrives at emergency service. The results of this study demonstrate a necessity of reinforcing preventive intervention strategies for this population.

Keywords: Adolescent; Child; Mental health; Substance-related disorders.

RESUMO: *Introdução:* O uso de álcool, tabaco e drogas ilícitas por crianças e adolescentes é um problema de saúde pública que assume importância cada vez maior em todo o mundo. O aumento da prevalência do uso dessas substâncias foi acompanhado por maiores níveis de ansiedade, sintomas depressivos e outros transtornos psiquiátricos, além de aumento nas taxas de violência e mortalidade. *Objetivo:* Analisar a prevalência de atendimentos por uso de drogas em um Serviço de Urgência em Psiquiatria da Infância e Adolescência de Belo Horizonte, bem como determinar o perfil sociodemográfico desses pacientes. *Metodologia:* Trata-se de estudo transversal realizado por meio de revisão de prontuários de pacientes que procuraram um serviço de urgência em saúde mental infantil durante o período de um ano. A análise comparativa das variáveis categóricas foi feita pelo teste qui-quadrado de Pearson ou exato de Fisher. Foi utilizado o teste t de *Student* de amostras independentes para a variável contínua. *Resultados:* Foram coletados dados de 2255 atendimentos. A prevalência do uso de substâncias psicoativas encontrada foi de 17,7% da amostra. A droga mais utilizada foi a maconha (14,1%), seguida por cocaína (7%), álcool (5,7%), tabaco (4,2%), solventes e inalantes (3,6%) e crack (1,7%). Foi observado maior consumo em homens, faixa etária 15-17 anos e etnia parda. *Conclusão:* Foi observada significativa prevalência no uso de drogas entre crianças e adolescentes. É possível presumir que a real prevalência seja maior, uma vez que se acredita que a porcentagem real de jovens que utilizam essas substâncias é maior que a parcela que chega ao serviço de urgência. Os resultados encontrados demonstram uma necessidade de reforçar estratégias de intervenções preventivas para essa população.

Descritores: Adolescente; Criança; Saúde mental; Transtornos relacionados ao uso de substâncias.

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INTRODUCTION

The use of psychoactive substances (PS) is widespread and endemic among adolescents[1]. In the United States, almost 50% of adolescents have tried an illicit drug and more than 80% have used alcohol. Many suffer negative consequences in their social, physical, and emotional health, such as feelings of sadness, loneliness, insomnia, and suicidal ideation[1,2].

Brazilian studies reveal that the number of children and adolescents who have already consumed alcohol is approximately 60% and that 25.5% have already used drugs other than alcohol and tobacco[2,3]. Some associated factors are suggested, such as substance use by family and friends, poverty, community and/or school violence, use of drugs and/or alcohol by parents, exposure to intrauterine drugs and/or alcohol, marital conflict, family dysfunction and/or disturbed family environment, mistreatment, child abuse. Apart from that, some individual factors may also be associated, such as irritability, motor, linguistic and cognitive difficulties, and early aggressive behavior[1,2].

As a consequence, there are reports of high rates of mental disorders concomitant with the use of these substances (61 to 88%) among adolescents aged 13 to 18, such as conduct disorder, attention deficit hyperactivity disorder (ADHD), major depressive disorder, bipolar disorder, post-traumatic stress disorder, anxiety disorders, and schizophrenia[1]. McCardle[4] corroborates this statistic to some extent when he reports that the increase in the prevalence of drug use occurred in parallel with the increase in the rates of anxiety and depressive symptoms, as well as deaths related to substance misuse. In addition, he concluded that substance use disorders are potentially treatable and should be managed as recurrent chronic diseases of complex origin[4].

Apart from that, drug use is related to increased levels of urban violence, such as homicides, assaults, and traffic accidents. It is also present in the family environment, which characterizes domestic violence[5]. A study carried out in the city of Belo Horizonte revealed that from 2000 to 2009, in about 30% of homicide deaths in the city's population it was possible to identify alcohol, marijuana, cocaine, or crack in the *post mortem* exam[6]. Thus, the damage caused by the use of substances not only involves the individual but also leads to harmful consequences in daily environments such as work, school, and social environment in general.

Therefore, it is possible to finally highlight the importance of constructing the profile of the population at risk, intending to create early prevention and intervention strategies, which would minimize risks related to the health of the user and others involved, as well as consequent socio-economic issues.

MATERIALS AND METHODS

Study Design

This is a descriptive cross-sectional study, carried out using data from medical records of patients seen at the urgency department of a Mental Health Service for Children and Adolescents in Belo Horizonte. It is a section of the study entitled "Profile of patients seen at an emergency service in childhood and adolescence psychiatry in the city of Belo Horizonte", focusing on services related to the use of alcohol and other drugs.

Sample

All urgent care of this service was evaluated from June 1st, 2017 to May 31st, 2018 in search of data related to drug use, that is, in which the use of the substance has been reported, by patient or guardian, as one of the reasons for seeking emergency care. In this study, no sample calculation was performed, since the final sample was composed of all 2,255 visits that occurred in the above-mentioned period. The data collection followed the script of the original project and, after identifying the attendances of interest for the current study, the profile of this population was analyzed. Medical records with illegible data were excluded from the study.

Instruments

To guide the acquisition of data from medical records, a script was developed by the authors to gather information about sociodemographic data, previous or current history of other psychiatric disorders, and history of substance use. All data were obtained through the evaluation of medical records recorded by professionals in the field of mental health for children and adolescents. Sex and age were accessed in the registration form of the medical record, which is based on the patient's documents. Only psychiatric diagnoses made by the specialists of the center in question were included in the analysis.

Procedures

Data collection started after the approval of the Research Ethics Committee. The principles of ethics were respected and are following Resolution 466/12 of the National Health Council. The project was approved on June 1st, 2018, with the opinion number 2,687,203 and CAAE 83419717.0.0000.5134.

The institution where the study was conducted provides multidisciplinary mental health care for children and adolescents, at secondary and tertiary levels, for the municipal's and state's population. Hence, there are consultations in the modalities of outpatient, day hospital, hospitalization, and emergency care 24 hours. The entrance of patients in the service is through reception and/or emergency psychiatric care. Thereafter, the modality of care is defined and, after stabilizing the clinical condition, the team begins the process of care transferring to the territory as recommended by *Sistema Único de Saúde* (SUS).

For data analysis, the use of psychoactive substances (PS) was considered according to the presence of a declaration of use in the medical record as one of the complaints that lead the patient to seek care. As for the definition of drugs and psychoactive substances, the WHO guideline[7] was used as a reference: a drug is any substance that alters the biochemical or physiological processes of tissues or organisms. However, the term is commonly used to refer to psychoactive drugs, that is, those that interfere with the psyche. Legal drugs are addictive substances, but they are legally traded, although their use may be restricted. Illicit drugs, on the other hand, cannot be produced, manufactured, purchased, marketed, supplied, or stored by law and, in Brazil, they are cited on the List of Substances Subject to Special Control by ANVISA[8]. The substances considered in the evaluation were alcohol, marijuana, cocaine, tobacco, crack, solvents, and inhalants. Other illicit drugs were included in the "other PS" category.

The study of medical records was done both manually through the evaluation of physical files and online on the institution's platform. After, the data were tabulated for analysis.

Statistical analysis

The characterization analysis of the data was based on absolute frequencies and percentages for categorical variables. For continuous variables, the calculation of mean and standard deviation was used. Comparative analysis of categorical variables was performed using Pearson's chi-square test or Fisher's exact test, when appropriate. For continuous variables, Student's t-test of independent samples was used. Statistical analysis was performed using the Statistical Package for Social Sciences [SPSS (IBM, United States)] version 20.0. The level of significance considered for all analyzes was $p < 0.05$.]

RESULTS

The sample consisted of 2,255 consultations , 62.7% male and 37.3% female, average age 13.0 ± 3.8. The use of psychoactive substances (PS) was reported in 400 cases (17.7%). The most-reported drug was marijuana (14.1%), followed by cocaine (7%), alcohol (5.7%), tobacco (4.2%), solvents and inhalants (3.6%), and crack (1.7%) (Table 1).

The use was predominant in males (70.2%) (Chart 1). Among all the boys evaluated, 20% had a report of PS consumption, while among girls the proportion was 14%. The average age of individuals who use PS is 15.5 ± 1.7 and the age group with the highest consumption is 15-17 years old (75.5%), followed by 14 years old or less (23.8%) (Table 2). Among all consultations, patients using PS correspond to 29.2% of individuals aged 15-17 years, in contrast to 7.8% of patients aged 14 years or less ($p < 0.001$).

Table 1 - Prevalence of PS use in young people seen in the emergency department

PS USe	N (%)
Use of marijuana	
Yes	318 (14.1)
No	1937 (85.9)
Use of Solvents and Inhalants	
Yes	81 (3.6)
No	2174 (96.4)
Use of crack	
Yes	39 (1.7)
No	2216 (98.3)
Use of cocaine	
Yes	157 (7.0)
No	2098 (93.0)
Use of alcohol	
Yes	129 (5.7)
No	2126 (94.3)
Use of tobacco	
Yes	95 (4.2)
No	2160 (95.8)
Use of other PS	
Yes	30 (1.3)
No	2225 (98.7)

Chart 1 - Distribution of PS users according to sex

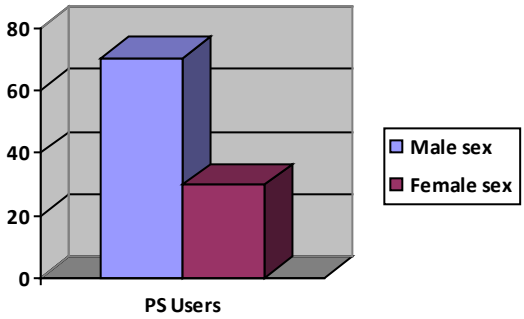


Table 2 - Frequency of PS use by age

Coded age	
≤ 14 years old	95 (23.8)
15-17 years old	302 (75.5)
≥ 18 years old	03 (0.7)
Age (years)[a*]	15.5 ± 1.7

[a], average ± standard deviation.
* a maximum age: 20 years.

As for ethnicity, it was possible to observe that the use of PS was only different in groups of the white race, which was associated with a lower frequency of use (16.1% x 21.1%; p = 0.03). Table 3 details the pattern of use according to ethnicity.

Table 3 - Analysis of the ethnic profile of patients using and not using SPA

Ethnicity	Use of PS present *n* (%)	Use of PS absent *n* (%)	*P*
White	61 (16.1)	362 (21.1)	0.03
Brown	281 (74.1)	1228 (71.6)	0.33
Black	37 (9.8)	121 (7.1)	0.07
Asian	0 (0.0)	03 (100)	1.00

Asymptotic Pearson's X2 test or Fisher's exact test was used to compare categorical variables as appropriate.

Regarding the legal guardian of the minors, it was observed that the majority of individuals who use PS have only the mother as the guardian (31.4%), followed by both biological parents (28.4%) and adolescents who were part of some socio-educational measure (24.8%). In contrast, patients who do not use PS have mostly both biological parents as legal guardians (42.6%) or only the mother (32.2%). In addition, when comparing the groups that use and that do not use PS, there was less declaration of use of PS among those whose legal guardians were their biological parents and those who were not in a socio-educational measure (28.4 x 42.6%, p <0.001 and 24.8% x 7.4% p <0.001, respectively).

As to the presence of psychiatric disorders, 87% of individuals who use PS were given a psychiatric diagnosis, while this value drops to 57.1% when analyzing those who do not use such substances (p <0.001). The relationship between the use of PS and the presence of psychiatric disorders can be confirmed in Table 4.

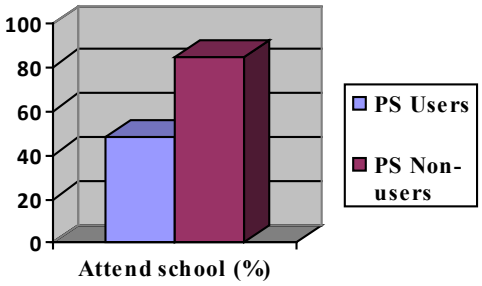
Finally, it was noted that only 47.9% of PS users attended the school during the period of medical care, against 84.6% of non-users (Chart 2).

Table 4 - Relationship between use of PS and the presence of psychiatric disorders

Presence of psychiatric disorders	PS use present n (%)*	PS use absent n (%)**	P
Depression	92 (23.0)	320 (17.3)	0.007
Bipolar affective disorder	10 (2.5)	31 (1.7)	0.26
Affective disorders, unspecified	23 (5.8)	60 (3.2)	0.02
Unspecified non-organic psychosis	30 (7.5)	75 (4.0)	0.003
Acute and transient psychotic disorders	27 (6.8)	72 (3.9)	0.01
Schizophrenia	12 (3.0)	47 (2.5)	0.60
Anxiety	03 (0.8)	54 (2.9)	0.008
Reactions to stress	29 (7.2)	82 (4.4)	0.02
Dissociative disorders	04 (1.0)	34 (1.8)	0.29
Obsessive-compulsive disorder	02 (0.5)	07 (0.4)	0.67
Attention deficit hyperactivity disorder	13 (3.2)	77 (4.2)	0.40
Oppositional defiant disorder	09 (2.2)	44 (2.4)	0.88
Other conduct disorders	63 (15.8)	96 (5.2)	<0.001
Mixed disorders of conduct and emotions	15 (3.8)	48 (2.6)	0.20
Intellectual deficit (Mental Retardation)	27 (6.8)	170 (9.2)	0.12
Global developmental disorders	01 (0.2)	78 (4.2)	<0.001
School skills disorder	01 (0.2)	03 (0.2)	0.54

* Percentage of patients who have the disease among all (n = 400) those who use PS.
** Percentage of patients who have the disease among all (n = 1855) those who do not use PS.

Chart 2 - Percentage of drug users and non-drug users attending school



DISCUSSION

It is noticed that, in the sample, the profile of PS use according to sex and age group was similar to the one traced by Silva et al.[9], who evaluated the consumption among high school students, which was more frequent in male individuals aged between 16 and 17 years old. It is important to remark that in the institution evaluated patients are referred to other services when they are eighteen years old or more, which justifies the small percentage of users after that age. The study did not evaluate the quantity and frequency used, but only the use declared as a complaint in the reception or emergency care. Thus, many of the users who sought the service for other reasons were not identified.

Regarding the patient's sex, boys had a higher prevalence of use than girls. In this matter, the literature is variable, with some studies showing no difference between sexes[2,10], others observing a higher prevalence in males[11,12] and a recent study conducted in Brazil revealed a higher prevalence in girls[13]. A hypothesis raised is the fact that the use of alcohol is culturally more accepted among men, and in recent years, there are reports that female behavior concerning the use of legal and illegal substances is becoming quite similar to that of men[10]. As for ethnicity, an inverse relationship of use with the white race was observed. This may be related to the socioeconomic differences found in the country since the use of substances seems to be associated with the degree of marginalization of the population[13]. This result contrasts with studies found, as other Brazilian authors did not observe contrasts between different ethnicities[2,14,15].

A prevalence of 17.7% of visits with PS was identified, with the use of marijuana (14%), cocaine (7%), alcohol (5.7%), tobacco (4.2%), solvents and inhalants (3.6%) and crack (1.7%). The use of alcohol and tobacco found contrasts with most studies raised, both Brazilian and foreign, which acknowledge considerably higher consumption. Bertoni et al.[16], in a study carried out in Minas Gerais, reported a prevalence of alcohol use in young people aged 10 to 19 years old of 45.9% and tobacco 23%. Silva et al.[9], in São José do Rio Preto (SP), mentioned a frequency of alcohol use of 77% and tobacco 28%. Elicker et al.[15], in Porto Velho (RO), o observed a prevalence of 24% for alcohol and 6.4% of tobacco in a population aged 5 to 18 years. Lopes et al.[11] declared that alcohol is the most used drug in Brazil, which corroborates data found in other countries[17,18], and differs from the findings of the present study, in which the drug occupies third place in the frequency of use. This difference may be related to the fact that the data were obtained through the analysis of medical records of emergency care, where the anamnesis is usually more objective, in contrast to the other studies that were carried out in schools and the students were specifically asked about the use of drugs. Thus, it is not possible to know, for example, if the use of these substances was not investigated during the call. In addition, the age range of the present study is broader, also encompassing young children, to whom such inquire is not usually carried out.

As for the use of marijuana, the study found a prevalence similar to that found by Silva et al.[9] in São José do Rio Preto (SP) (18,1%), and Vieira et al.[2] in Southern Brazil (16,9%), but slightly lower than that found by Nascimento et al.[19] in Guarulhos (SP) (28%). Again, this can be explained by the fact that the current study sample is from an emergency department. However, studies from the United States and Central America revealed a lower prevalence, respectively 7.4% and 4%[12,20].

The literature informs that the proportion of young people who have tried illicit drugs at least once, in different countries, was greater than 40% in Australia, greater than 35% in Canada, and greater than 40% in the United States[1]. These data contrast with the lower prevalence of use found in the study (17.7%), which may have been underestimated, since the young patient was not specifically questioned about the experience with the drug, due to the methodology used by the study.

The study showed that the most frequent psychiatric illness was depression, with a prevalence of 23% in PS users and 17% in non-users. There was a higher prevalence in the group using PS of other conditions such as unspecified non-organic psychosis, unspecified affective disorders, reactions to stress, acute and transient psychotic disorders, and other conduct disorders. These results reinforce the data established in the literature, which demonstrate a relationship of simultaneous occurrence of these disorders[1,13]. In the present study, there was no relationship between the use of PS and bipolar affective disorder, which contrasts with the association well-established in the literature[21]. Drug use can be involved as a risk factor, as a consequence of these conditions, or even determine greater severity in cases of previous psychiatric illness[1].

A recent study published by Gobbi et al.[22] in 2019 found that adolescent marijuana use was associated with

an increased risk of developing depression and suicidal behavior later in life, even in the absence of a pre-morbid condition. This data increases the concern with the high prevalence of the use of such substance uncovered in the study and highlights the importance of creating measures to diminish it, especially considering that the actual prevalence of use is probably even higher.

As for family structure, 28.4% of PS users had both biological parents as legal guardians, compared to a percentage of 42.6% of non-users. Although the present study is a cross-section and does not allow the establishment of a causal relationship, this result suggests that the lack of parental support may predispose to higher consumption of drugs among adolescents, a data corroborated by Zappe et al.[23]. Broeker et al.[24] registered that socially desirable parental educational practices are associated with less chemical dependency. These data can serve as a substrate to encourage professionals who deal with these patients to extend care to their guardians. This way, through psychoeducational practices it would be possible to raise awareness about the importance of strengthened family bonds in preventing the use of psychoactive substances by their children. However, no articles that directly analyzed the presence of both biological parents as a protective factor were found.

Although the literature points out that having as legal guardian only a father or mother is a risk factor for the use of psychoactive substances[23], in the analysis in question no statistical difference was found when comparing groups using PS and non-users. Such a difference may not have been found since some of the minor patients had, at the time of the consultation, socio-educational units as their guardian and did not provide any information about who was the legal guardian before. Thus, this factor may have been biased when evaluating the variable "legal guardian", not allowing us to come to conclusions about the family structure.

It was also noted that there was a higher prevalence of socio-educational units as guardians among PS users (24.8%) when compared to non-users (7.4%). This association has already been reported, with a prevalence of up to 75% of PS use in adolescents in conflict with the law according to 2012 data from the Conselho Nacional de Justiça. In addition, most of them used more than one type of psychoactive substance and most young people in socio-educational institutions are linked to drug trafficking[25].

Studies indicate that drug use itself is a predisposing factor for committing an infraction since some of these substances (such as cocaine, alcohol, inhalants) can lead to increased aggressiveness[26]. It was observed in the literature that the early use of psychoactive substances is related to a greater likelihood of committing delinquent acts[25].

Due to the use of data from medical records as the source of information, some limitations can be highlighted. Some files of medical records of patients seen during the study period were lost or not found, making their collection unfeasible. Another limiting aspect observed was the presence of unreadable and/or incongruous decontextualized data, which had to be excluded from the research. Apart from that, the information contained is derived from an interview in reception and/or emergency care and all information in the script was not always contained in the assessment, as patients are often not specifically questioned by the use of PS. Urgent care requires quick driving and may result in a summary record of some data requested by the script. Thus, the prevalence of PS use may have been underestimated.

CONCLUSION

The present study reported a significant prevalence of drug use among children and adolescents, reinforcing the data available in the current literature[1,2,3,4]. It is possible to assume that the real prevalence is higher since it is believed that the real percentage of young people who use these substances is greater than the portion that arrives at the emergency service. In addition, not all consultations might have investigated the use of PS. Given the results, the emergency services that serve this population must examine the use of PS especially when it is not the main complaint, aiming at early identification for psychoeducation.

Associations with psychiatric illnesses, especially depression, and with the absence of parents as guardians were identified, corroborating most of the studies found. We emphasize the need for further studies with the same population to try to establish whether the consumption of the drug would take place before or after the psychiatric disorder.

It is known that the use of drugs can jeopardize the future of young people, causing social and economic damage, as well as increasing levels of violence and homicide rates in the country. Thus, the results found demonstrate the urgency to intervene in the populations at greatest risk and in the environment in which they are inserted. The high prevalence of use in adolescents who are fulfilling a socio-educational measure, for example, may suggest the need for approaches in these places.

We are not aware of the existence of other studies that address a period of one year in a children's emergency service. In addition, the study conducted in the emergency room, where the use of PS was only considered if it was brought as a complaint by the minor or guardian, can be compared to studies in which the general use by young people was investigated. In this way, it will be possible to assess the difference between the actual use of PS and when it is considered a problem for the young person or guardian. As it is a pioneering study in such a service location, the need for further studies in other regions of the country is emphasized before a generalization of the data.

Declaration of responsibility and conflict of interest: we declare authority for the content of the manuscript and the absence of conflicts of interest.

Authors' contribution: ACMC: preparation of the research project, data collection, research of the theoretical framework in databases, writing, and adaptation of the article to the journal's standards with subsequent submission to the platform for publication. ACBMF: preparation of the initial project, research of the theoretical framework in databases, data
collection, writing of the article. ALSG; AMFC: elaboration of the initial project, data collection. AMSL; JPVT; CPC; MSN: data collection. LRC; MCLM: guidance on the preparation of the initial project, development of the project and data collection roadmap; expenditure financing.

Acknowledgment: we thank DAV for the statistical assistance and the Centro Psíquico da Adolescência e Infância (CEPAI), an institution belonging to the Fundação Hospitalar do Estado de Minas Gerais (FHEMIG).

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Submited: January 08, 2020
Accepted: August 11, 2020