EPIDEMIOLOGICAL ANALYSIS OF DRUG USE IN CÔTE D'IVOIRE

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Abstract: For more than a decade, Côte d'Ivoire has become the hub of illicit drugs in Africa. This is shown by the huge quantities (several tons/year) that have been seized by the authorities. Also, young users of these psychoactive substances do no longer hide themselves. However, few studies have been carried out on the epidemiology of drug addiction and on the complications linked to the use of these illicit drugs in Côte d'Ivoire. In this context, we planned to perform an epidemiological analysis of drug use in this country. To this end, a survey conducted using a questionnaire submitted to patients in two detoxification centers in the city of Abidjan (Côte d'Ivoire).

It was found from this study that the most illicit drugs commonly used in this country were respectively, cannabis, heroin, cocaine and crack. The preference for cannabis is due to its affordabîlity (relatively low cost). Also, learners (pupils and students) are the biggest consumers of drugs.

Keywords: narcotics-drug users-short term memory.

I / INTRODUCTION

The use of psychoactive substances is increasing. No continent or social stratum is being spared. This behaviour leads to harmful consequences on health and life in society (Kpozehouen, 2015). Manuila et al, (1991) define a narcotic drug as a psychotropic drug that is prohibited or subject to regulation because it may cause a problematic consumption or a chemical substance that acts on the central nervous system inducing changes in perception, sensation, mood or consciousness. It has been estimated that in 2010, their use caused 99,000 to 253,000 deaths worldwide. These deaths accounted for 0.5-1.3% of all-cause of mortality among people aged 15-64 years old (UNODC, 2012). Africa is not immune to the increase in the use of psychoactive substances. Drug use in Africa is currently a major concern for political and health authorities. While at the global level cannabis abuse seems to be stabilised (prevalence: 3.4%), it continues to increase in Africa, among people aged between 15 and 64 years old (Tigori-Sangaré et al 2009).

Cannabis remains the most widely used illicit drug in this part of the world, followed by amphetamine (Perras, 2016; Aning, 2017). Most of the cannabis produced in Africa is consumed within the continent. An estimated 38,200,000 African adults (7.7% of the adult population) use cannabis annually. A wide variety of addictive substances are found in West Africa and a significant number of young people use them. This practice is thought to lead to physical, psychological and other social problems (Genberg et al. 2021).

In Côte d'Ivoire, studies have been conducted on the causes of psychoactive substances. For each of them, different indicators as well as several factors have been revealed on the use of these substances (Ndri, 2018). For more than a decade, this country has become the hub of drugs in Africa, as shown by the large quantities of drugs being seized by the authorities. Also, young users of these psychoactive substances do no longer hide themselves. However, few

studies have been carried out on the epidemiology of drug addiction and on the complications linked to the use of these illicit drugs in Côte d'Ivoire.

In this context, we planned to perform an epidemiological analysis of drug use in this country. The aim of this study was to determine which drugs were most commonly consumed in Côte d'Ivoire.

II/ MATERIALS AND METHODS
II.1-MATERIALS

II.1.1-patients

The epidemiological survey was carried out from December to January 2021 (2 months) and was focused on patients admitted for treatment at the Regional training Center for the Fight against Drugs (CRFLD) and at the Blue Cross center.

II.1.2-Technical equipment

The technical material was mainly composed of :
- a questionnaire (see appendix);
- patients' medical files were consulted to provide further information;

II.2-METHODS

II.2.1-Epidemiological approach to drug use

The survey carried out from 10th November to 2nd January 2021 to determine the most commonly used narcotics in Côte d'Ivoire, involved 127 patients, including 118 boys and 09 girls, from two centers: the Regional training center for the Fight against Drugs(CRFLD) in Grand-Bassam (Côte d'Ivoire) and the Blue Cross center in Williams-Ville (Côte d'Ivoire). The survey was done using a questionnaire modified from the one developed by Camara et al., (2008) (see Appendix 1). Informed consent was obtained from each patients beforehand.

II.2.2 Data processing

The data collected in this study were processed using STATISTICA® 10.0 software, which allowed the patients to be gathered by gender, age group and occupational status. Preference and drugs consumption were compared using the chi-square ($\chi2$) test for each group. The accepted lower limit of the chi-square ($\chi2$) test was 4 for the significance of differences (Schwartz, 1978). To improve approximations, we used the chi-square ($\chi2$) test with Yates' correction (Hays, 1988). In other words, if $\chi2 < 4$, the difference is not significant; on the other hand, if $\chi2 \geq 4$, the difference is significant and the significance level p is less or equal to 0.05.

III / RESULTS

III.1 Epidemiological analysis of drug use

During the two months of this study, 127 people were admitted for treatment in these two centers (CRFLD and bleue cross). The distribution of these patients was shown in table II. This work revealed that 79.52% of the drug addicts mainly used cannabis, while 11.81% used opiates, 7.08% used cocaine and 1.57% used crack (Figure 1). The difference was highly significant for cannabis (F (1, 28) =41.08 for p=0.0023).

The distribution according to sex indicated that 75.59% of boys used cannabis compared to only 3.93% of girls (Figure 2). The difference is highly significant [F (1, 25) =42.52; p=0.0014]. As for cocaine, 5.57% of boys used it compared to only 1.75% of girls. The inter-gender comparison indicates a non-significant difference [F (1,18) = 21.17; p=0.8303].

Regarding opiates, 10.13% of boys used them compared to 1.57% of girls. The patient population interviewed in these two centers had no attraction for crack cocaine in that none of the girls (0%) used it and only 1.57% of the boys used it (Figure 2).

Comparisons by age group indicated that 18 to 49 year olds used significantly more drugs than 13 to 17 year olds, as F (2, 23) = 35.02 and p=0.023 (Figure 3).

This work also revealed that learners (pupils and students) used more drugs than unemployed and workers. However, inter-group comparisons did not show any significant differences [F (2,23) = 23.51; p=0.110] (Figure 4)
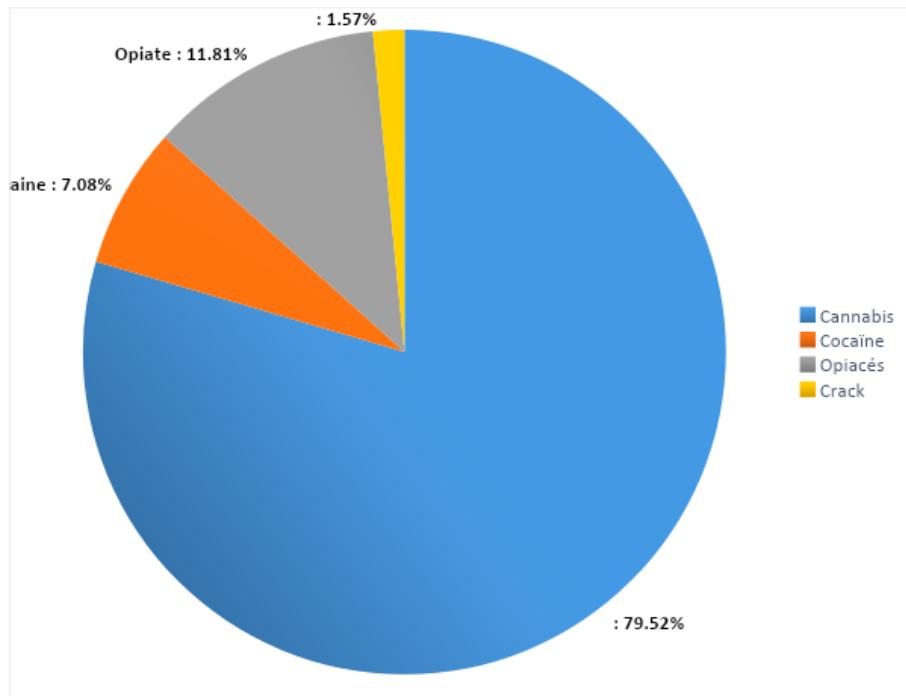

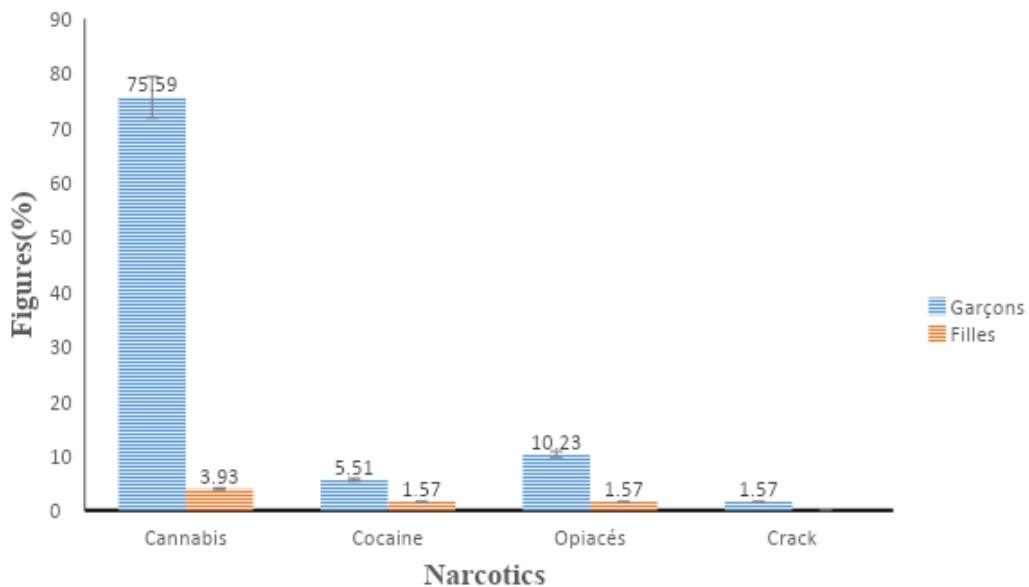**Figure 1: Percentage of people using drugs at the CRFLD and the Blue Cross**
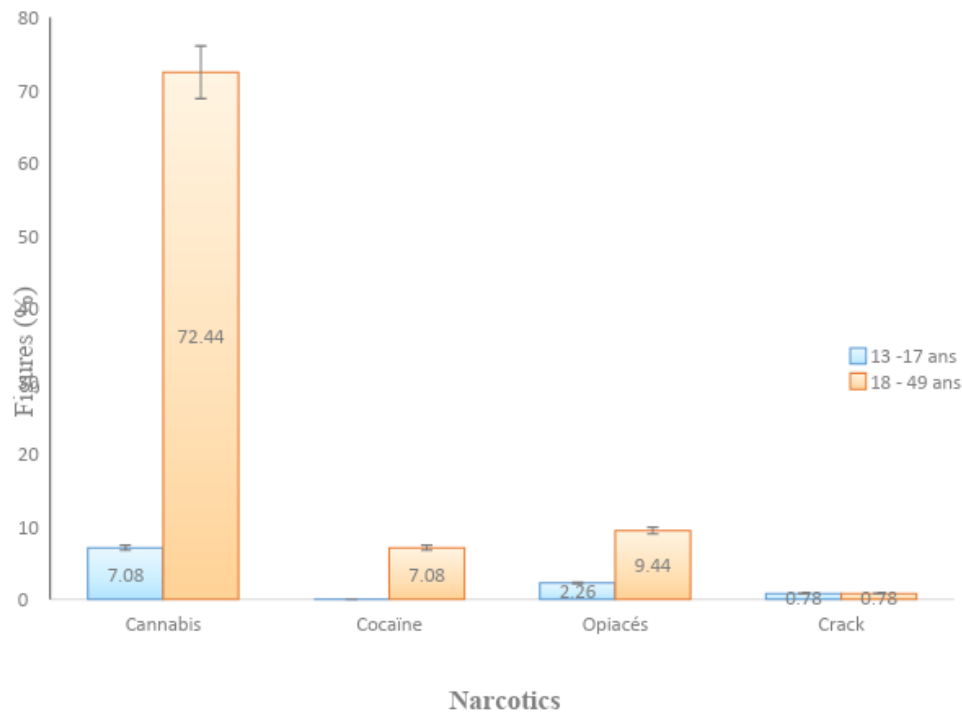

Figure 2: Drug consumption by gender

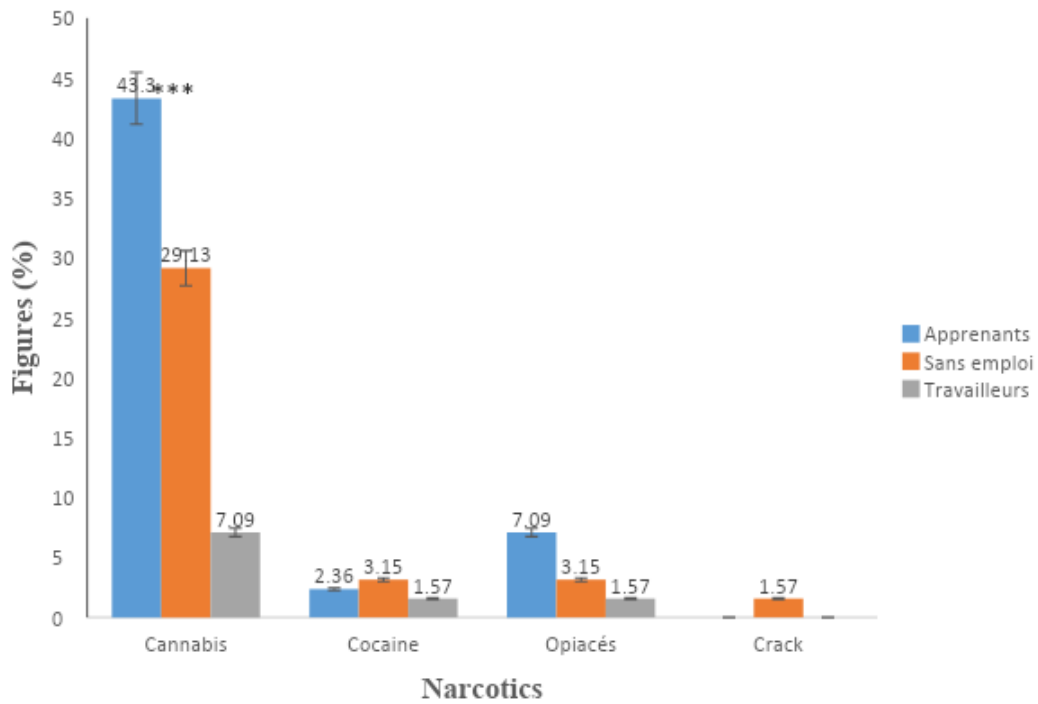**Figure 3: Drug consumption by age group**

Figure 4: Percentage of drug use by activity

The main drug users are boys, students and the unemployed, followed by the 13-17 age group.

*: significant
** : very significant
*** : very very significant

IV- DISCUSSION

This work revealed that cannabis is the most widely used illicit drug, followed by heroin, cocaine and crack. these data are in agreement with many data in the literature. Indeed, it is the most widely used drug in France: 41.5% of 17 years old young people smoked it at least once, and 6.5% used it regularly (at least 10 times a month); 32.8% of adults which ages ranged between 18 to 64 had experimented with it and 2.1% smoked it regularly OFDT (2013). The incidence of addiction was about 1% in the general population Stinson et al., (2006). Cannabis was smoked in the form of joints, usually with tobacco, more rarely in the form of water pipes ("bong"). The mean level of delta9-THC, the main active ingredient in cannabis, was 11% (herb) or 12% (resin) OFDT (2013). The effects sought were euphoria, feelings of relaxation, relaxation and disinhibition Dervaux et al., (2012). The gender breakdown showed a strong male predominance. This result is in agreement with the study of Beck (2005) who showed that drug use was predominantly male and that the observed gender differences increased with age. There is a significant relationship between age and drug use. These results comply with those of Young et al., (2012), in which "age is a discriminating factor in the use of psychoactive substances". The consumption of those aged between 18 to 49 years old, is significantly higher than that of those from 13 to 17 years old, and this difference could be due to the relatively greater purchasing power of the former.

The distribution according to occupation indicated that the majority of drug users admitted to these two specialised centers were young learners (43.30%), followed by the unemployed and then workers. These results are in accordance with the work of Beck et al., (2005) who found that the frequency of substance use was strongly related to the educational status.

It should be noted that patients in these two centers were registered (n=127) within two (2) months. The treatment cost (detoxification) per person is 700,000 FCFA (i.e. 1077 € or 1273 $). This is a large amount of money for a country like Côte d'Ivoire (a developing country). This means that the majority of intoxicated people constituting the youth are not treated and representing the backbone of the nation. Regular cannabis use induces cognitive disorders, in particular attention, memory and executive function disorders. These disorders are related to the dose, frequency, duration of exposure and age of first use (increased risk if use began before the age of 15) (Inserm, 2013). A 25-year exposure to cannabis reduces the intelligence quotient (IQ) by 8 points in an irreversible way (Costentin 2017). The effects of cannabis are reflected in a dose-dependent decrease in grey matter density in the hippocampus, parahippocampal regions and amygdala in regular users (daily use for several years) (Inserm, 2013). Short-term memory involves the hippocampus and neurons mediated by acetylcholine. Their destruction determines the disorders of Alzheimer's disease. Furthermore, according to Costentin (2017), narcotics reduce the blood supply and thus the oxygen supply to the hippocampus. The lasting impairment of memory functions leads to a regression in intellectual performance.

Imaging studies (MRI) showed that regular and prolonged cocaine use can induce a reduction in the volume of the prefrontal and temporal cortices, which can persist for several weeks after withdrawal Volkow et al., (2004). Clinically, this abnormality may correspond to attention and executive function disorders, with loss of inhibitory control, impaired judgement and difficulties in decision making. Bolla et al., (1999) state that acute use of large amounts of cocaine (over 2 grams) would have an impact on verbal fluency tasks, executive functions and verbal memory, compared to moderate doses.

Prolonged heroin use may also induce volume reduction in the prefrontal and temporal cortices, reversible after withdrawal (Wang et al., 2012). According to some clinical studies, almost two-thirds of cocaine addicts, between one-third and one-half of heroin addicts and 10% of cannabis addicts had an alcohol dependence problem in their lifetime (Dervaux et al., 2012).

V/ CONCLUSION

This study shows that the most widely consumed drugs in Côte d'Ivoire are cannabis, followed by heroin, cocaine and crack. The observed preference for cannabis is due to its accessibility (relatively low cost). Also, learners (pupils and students) are the biggest consumers of narcotics.

This study should be widely disseminated in order to raise the awareness of the extent of the phenomenon and the potential havoc associated with it.

VI/ REFERENCES

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