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Comorbidities Schizophrenia-Addiction To Cannabis And Tobacco In Madagascar In 2022

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Abstract – The use of psychoactive substances is frequent in schizophrenic patients. The main objective was to determine the prevalence of schizophrenia-addiction comorbidity and to characterize its evolution.

This is an observational, cross-sectional, descriptive and bicentric study carried out in the Psychiatry Department of the Professor Zafisaona Gabriel University Hospital Center and at the Toby Peniela in Antanimasaja over a period of 4 months from February to May 2022.

All schizophrenics meeting DSM-V criteria were included. It was collected 60 patients. The average age was 30.60 years, a sex ratio of 2.15; Joblessness was found in 45%. The prevalence of active drug taking was 91.66%, including cannabis in 60% and tobacco in 40%. Non-deficient schizophrenia predominated in 53.33% of cases and 66.67% of them were cannabis users and 61.11% of these cannabis patients had grown up in a "non-biparental" situation. The age of onset of drug intake was 17.5 years and the time between drug intake and psychiatric disorders was 3.25 years. The begining of the disease for addicted patients was at 22.52 years and for those non-addicted one at 30.6 years. Cannabis addiction was found in 51.61%.

Strengthening the fight against drug addiction, increasing sensitization of psychiatric pathologies and supporting single-parent families could reduce the prevalence of drug addiction and improve their care.

Keywords – Addiction, Cannabis, Misuse, Schizophrenia, Troubles

I. INTRODUCTION

The comorbidity of schizophrenia and addiction raised the interest of researchers for twenty years ago. Various European and American studies have highlighted the coexistence of drug addiction and mental disorders in the global population [2-4].

In France, 54% of schizophrenic patients declared trying to use at least once upon a time cannabis [6]. Moreover, the frequency of tobacco consumption in schizophrenic patients was around 60 to 90% of subjects according to the studies compared to 23 to 30% in the general population [7].

In Mali, the prevalence of psychiatric disorders was 10.4% in 2022. Among these patients, the diagnosis of schizophrenia, schizotypal disorders and delusional disorders were found in 67.8% of cases. In addition, the notion of drug use such as tobacco, cannabis, alcohol, cocaine, heroin or tramadol was found in 42.9% of cases [8].

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Few studies were carried out in Madagascar particularly in Mahajanga about this subject, reason why this study on schizophrenia-addiction comorbidities considered as main objective to determine the prevalence of schizophrenia-addiction, cannabis and tobacco comorbidity, and characterize its evolution.

The specific objectives were to describe the clinical characteristics of schizophrenia and to determine the levels of cannabis and tobacco's addiction

II. METHODS

This is a bicentric study carried out in the Psychiatry Department of the Pr Zafisaona Gabriel University Hospital Center (CHU PZAGA), and at the Toby Peniela in Antanimasaja. The Toby Peniela in Antanimasaja is a Center that provides treatment and care through prayer and in addition with the participation of volunteers doctors. They took care of mental troubles from different regions under the supervision of the religion Fiangonan'i Jesoa Kristy eto Madagasikara (FJKM), and is part of the infrastructure of the Boeny Regional Synod. This was an observational, cross-sectional and descriptive study. The survey took place from February to May 2022, in a period of 4 months and with a period of 12 months from January 2022 to December 2022. This present study concerned all the patients registered in the study centers. The sampling mode used was the exhaustive mode. Were included all patients diagnosed with schizophrenia by a psychiatrist and according to DSM V criteria. The diagnosis involves the presence of two (or more) of the following symptoms (with at least one of the first three): delusions, hallucinations, disorganized speech, rude disorganized behavior or catatonic, negative symptoms, ongoing for at least 6 months.

Parameters analyzed were: socio-demographic characteristics, clinical aspect (type of deficit and non-deficit schizophrenia), active drug intake, motivation for taking cannabis, number of hospitalizations, duration of evolution of disorders. A pre-established survey form was used to collect data on the different parameters. The texts and graphics were treated by Excel® 2019. Data analysis was performed using Epi Info 7.1.1.14© software from the Center for Disease Control and Prevention (CDC) (USA). Pearson's Chi-square test was used to test associations between qualitative variables with a significance level (p value) of less than 0.05. This study respected the rules of medical ethics including the anonymity of each patient and respect for Human Rights, privacy, professional secrecy and the confidentiality of clinical records. The families of the patients had time to reflect, without any pressure or constraint and had accepted a well-informed oral consent. There was no conflict of interest.

III. RESULTS

During this study lasted 4 months, 60 patients were encountered. Nine of them were recruited at Toby Peniela Antanimasaja and 51 were found in consultation and hospitalization in the Psychiatry Department of CHU PZAGA. According to the schizophrenics profile, the age range of 20 to 39 years was the most represented with 71.67% of cases; the average age of the patients was 30.86 ± 10.19 years with extremes of 15 years and 63 years; 68.33% were male with a sex ratio of 2.15 and only 30% of schizophrenic patients were in a couple. Forty percent were inactive; the others are found in the primary, secondary and tertiary sectors respectively 16.67%, 25% and 13.33%. The level of education was distributed as follows: 48.33% secondary level, 26.67% university level, 21.67% primary level and 3.33% analphabetics. The majority of schizophrenic patients came from a large family with 85% of cases. Their parents were no longer in couple in 60% of cases. Forty percent of the patients were grown up by a single-parent family (single mother), 36.67% by a two-parents family, and 23.33% by guardians (Table I). The average age of the begining of the disease was 23.20 ± 10.11 years, the extremes of which were 13 years and 61 years. Non-deficit schizophrenia was predominant in 53.33% of cases (Table II)

Schizophrenia-addiction comorbidity

The prevalence of active drug taking among schizophrenics was 91.66%. Then, 60% were addicted to cannabis and 31.66% to tobacco. Drug intake before the current troubles was 53.33% of cases. The age of the begining of drug intake was on average 17.50 years with an extreme of 10 and 26 years. The period between taking drug and the begining of psychiatric disorders was on average 3.25 years with an an extreme of 3 months and 8 years (Table III). The average number of hospitalizations was 1.06 with 0.20 for non-addicted patients and 1.2 for addicted ones and there was association with $p = 0.01$. The average age of the begining of disease was 23.20 years, including 30.60 years for non-addicted and 22.52 years for addicted patients (Table IV). There was a significant association between cannabis use and the form of schizophrenia with $p = 0.04$.

Among cannabis users, 66.67% presented non-deficit schizophrenia and 33.33% with deficit schizophrenia, while among non-cannabic users, non-deficit schizophrenia represented 16.67% of cases and that with deficit 83.33% (Table V) .

Corresponding to family type and cannabis use: 61.11% of cannabis schizophrenics were raised from a non-two-parent family and 38.89% by a two-parent family, and among non-cannabis addicted, schizophrenics raised from a two-parent family were 33, 33% of cases and non-biparental 66.67% (Table VI).

Table I: Sociodemographic characteristics of schizophrenicschizophrenic patients

	Effective (n = 60)	Rate (%)
Age		
< 20 years	5	8.33
20 à 39 ans	43	71.67
40 à 59 years	11	18.33
≥ 60 years	1	1.67
Gender	41	68.33
Male	19	31.67
Female		
Matrimonial Status	42	70
In couple	18	30
Not in couple		
Profession	27	45
Joblessness	10	16.67
Primary Sector	15	25
Sencondary Sector	8	13.33
Third Sector		
Level of education	2	3.33
Analphabets	13	21.67
Primary	29	48.33
High School	16	26.67
University		
Relatives number	51	85
Many	5	8.33
None	3	5
Two	1	1.67
Abandonned		
Parents status	24	40
In couple	36	60
Not in couple		
Type of family		
Biparental	22	36.67
Monoparental	24	40
Tutor	14	23.33

Table II : caracteristics of schizophrenia

	Effective (n = 60)	Rate (%)
First age of hospitalization		
<20 years	9	30
20 à 39 years	18	31.67
≥40 years	3	10
Age of desease occurence		
<20 years	27	45
20 à 39 years	24	45
≥40 years	6	10
Type of schizophrenia		
Déficitary	28	46.67
Non déficitary	32	53.33

Table III: Distribution of patients according to the characteristics of toxic intake

	Average	Extreme
Begining of toxic intake	17.50 years	10-26 years
Delay between drug intake and psychiatric disorders	3.25 years	3 months to 8 years

Table IV: Addiction according to the characteristics of toxic intake and disease

	Non addictive (n=5)	Addictive (n=55)	Total (n=60)	*P*
Average number of hospitalizations	0.20	1.14	**1.06**	0.01
Average age of the onset of the desease	30.60 years	22.52 years	**23.20 years**	0.21

Table V: Distribution of cannabis patients according to the type of schizophrenia

	Cannabis use (n=24)	i (n=36)	Total (n=60)	*p*
Non deficitary	4 (16.67)	24 (66.67)	**28 (46.67)**	**0.04**
Deficitary	20 (83.33)	12 (33.33)	**32 (53.3)**	

Table VI: Distribution of patients according to family type and cannabis use

Cannabis use	**No (n=24)**	**Yes (n=36)**	**Total (n=60)**	***P***
Biparental	8 (33.33)	14 (38.89)	**22 (36.67)**	**0.03**
Non biparental	16 (66.67)	22 (61.11)	**38 (63.33)**	

IV. Discussion

In the present study, the patients were mainly aged 20 to 39 years with 71.67% of cases. The average age of patients was 30.86 ± 10.19 years with an extreme of 15 and 63 years. In Antananarivo, Bakohariliva and co. [21] reported an age similar with an average of 29.5 years. Schizophrenia was the most frequent psychosis in 2018. Ndambo Mbuyi [18, 97?] published that the age group between 21 and 30 years old was the most affected, i.e. 46.97% of cases and the average age was 31 years old in the Democratic Republic of Congo in 2015. In France, the average age of schizophrenic patients varied between 15 and 24 years in men and between 25 and 34 years in women according to Rouillon in 2007 [18]. Then, it was found that schizophrenic patients were particularly young [103].

The population of this study was marked by the predominance of the male gender (68.33%) with a sex ratio of 2.15. This male predominance has also been noted in several studies: in Mali [96], in DRC [97], in Morocco [99] and in France [101]. Some local studies mentioned that women are not the least affected by psychiatric disorders. Schizophrenia strikes both sexes in equal proportions in Mahajanga, while 70% of cases of mental disorders induced by cannabis concern the male sex according to Tanteliniaina in 2009 [10]. In addition, the study by Bakohariliva and co. [21] reported that the female gender was predominant in 53% of cases. Psychiatric disorders such as schizophrenia affected men, especially in the presence of comorbidity. It could be explained that men are more exposed to toxic substances than women. Cannabis addiction was found more in men than in women according to Coffey and co. in 2022 [86].

Most of the patients did not exercise any profession (45%) and in 25% of the cases, the patients were in the secondary sector. According to a study carried out in Antananarivo, students predominated in half of the cases (45%) [21]. In the Democratic Republic of Congo, the majority of patients had no occupation with a frequency of 53.62% [97]. In 72.7% of cases, schizophrenic patients were unemployed according to the study by Bouri et al [99]. According to a Tunisian study, the majority of patients were unemployed [100]. In France, 22.6% of schizophrenic patients had a professional activity, 15.1% were retired, 12.3% unemployed and 50% disabled [101]. So, this present study was not the only one to found that the majority of patients had no occupation. This is explained by the fact that schizophrenia hinders socio-professional life through the inability to exercise a professional activity.

In six cases out of ten (60%), the parents of patients did not live as a couple. Single parenthood predominated with 40% of cases and patients grown up by guardians represented 23.33%. Single parenthood was also observed in Mali with the predominance of separated parents (49%) among schizophrenics [96]. It was exclusively the mothers who took care of the family

in cases of single parenthood. Then, psychosocial support for single-parent families would be necessary for the prevention of disorders.

In this series, the majority of patients had non-deficit schizophrenia with 53.33% of cases. In 66.67% of cases, cannabis patients were diagnosed with non-deficit schizophrenia. In the Democratic Republic of Congo, Ndambo Mbuyi had noted that "positive" symptoms (non-deficit schizophrenia) were found the most, in 80.41% of cases [97]. According to Azzeddine, the most frequent clinical form was the productive or paranoid form such as described on the DSM-IV (non-deficit schizophrenia), with 68.75% for comorbid schizophrenics versus 62.5% for non-comorbid schizophrenics [2].

Then, these results exposed that non-deficit schizophrenia predominated among the types of schizophrenia. It was also been reported in the literature [112]. The type of schizophrenia could be associated with the environment in which the patient grew up. In the present research, the type of family was significantly associated (p=0.0001) with the type of schizophrenia found. The prevalence of active drug taking in schizophrenic patients was 36 cases of cannabis i.e. 60% of patients and 31.66% of tobacco. Andriantseheno and co. highlighted the presence of disorders related to the use of psychoactive substances (10.4%) including alcohol (59%) and cannabis (41%) among patients with psychiatric disorders [95]. The notion of taking toxic substances was found in more than half of the patients (52%) in Ousmane's study. Nearly one in two patients (51%) smoked cigarettes and 36.7% were polydrug addicted with at least two toxic substances [96]. Ndambo Mbuyi mentioned that the majority of patient consumed psychoactive substances (56.52%), and alcohol was the most found psychoactive substance (82.61%) [97]. In France, Delignère and co. reported that schizophrenic patients used tobacco in 64.1% of cases [101]. Litterature emphasized that cannabis abuse among schizophrenics is 2-5 times higher than in the general population, with a prevalence of 25% [3] It has been demonstrated that the consumption of psychoactive substances, especially cannabis, promotes the occurrence of schizophrenic symptoms in vulnerable patients which leads to dependence [113]..

The average age of patients at the begining of the disease was 23.2 years with extremes of 13 and 61 years. The disease started earlier in patients who took toxic substances (22.52 years) than in patients who did not take them (30.6 years) but the difference was not statistically significant (p=0.21). According to Tekin Uludağ and co., the median age at which symptoms started was 20 years with extremes of 18 and 28 years [100]. In general, the disease begins in the twenties, but it is earlier in comorbid schizophrenics. Young age and toxic intake are closely linked in schizophrenia like published in litteratures [56,59]. The fight against drug addiction among young people is then necessary.

In the present study, the average age of patients at the begining of toxic intake was 17.5 years with extremes of 10 years and 26 years. The same observation was made by Azzeddine in Algeria with average age for the first drug intake on 17.51 ± 3.72 years with a minimum age at 10 years, and a maximum age at 31 years, and a peak of 21.3% at the age of 16 years [2]. According to Seklaoui's study, the mean age at the begining of the disorders is 25.20 ± 5.874 years with a minimum at 16 and a maximum at 54 years [98]. These results demonstrate the precocity of toxic intake in the schizophrenic population.

The average delay between taking a drug and psychiatric disorders in the present study was 3.25 years with extremes of 3 months and 8 years. In Algeria, between the start of drug use and the start of psychotic disorders, the average year was equal to 5.31 ± 4.04 years with a minimum difference of 0 and a maximum difference of 18 years [2]. These results show that the disease occurs shortly after the onset of the toxic intake.

The average evolution duration of the disorders was 9.26 years in the present study, the extremes of which were 1 year and 35 years. Comorbid schizophrenics had a longer duration of evolution with 9.5 years against 5.33 years for non-comorbid schizophrenics. In Mali, hospitalization occurred after at least two years of disease progression in 49.6% and among them, 12.23% were hospitalized after ten years of disease progression [96]. A similar result was noted by Bouri reporting that the duration of evolution of the psychotic illness was 10.14 ± 7.70 years [99]. In addition, the duration of evolution of the disease was higher than this study with an average of 15 years according to Tekin Uludağ [100]. The evolution of the disease is generally long, which would require long-term treatment and good therapeutic compliance.

The difference in evolution between the types of patients according to the toxic intake depended on the fact that those who took addictive substances had an earlier onset of the disease. Most of the patients had taken a toxic substance before the onset of the current disorders with a rate of 53.33%. According to Azzeddine, the overwhelming majority of comorbid patients had started using cannabis before the onset of the disease (92.5%). Cannabis is thought to be a precipitating factor in psychosis in vulnerable subjects [2]. Toxic antecedents were found in the majority of cases (76.6%) before the onset of the disease

according to Seklaoui [98]. Finally, schizophrenia seemed to increase the risk of becoming a smoker, or even a dependent smoker, and tobacco consumption in 71% among schizophrenic men and 44% among women [59].

V. Conclusion

Schizophrenia is a psychiatric disorder that mainly affects young people whose use of illicit substances is frequent. It was found that the social and demographic characteristics of the patients had important similarities with those of studies abroad. Like the young age of the patients, the predominance of the male gender, relational difficulties such as growing up in a single-parent family without a father figure affected their psychosocial development and subsequently their professional activity. Thus, the biography was consistent with the literature. The consumption of psychoactive substances such as tobacco and cannabis was very marked favoring the early onset of the disease. The predominance of positive symptoms was noted after clinical evaluation. The strengthening of the fight against drug addiction and the strengthening of the sensitization of the general population about psychiatric illnesses could improve the quality of the management of mental illnesses.

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