Early Maladaptive Schemes and Depressive Episode Disorders, among Young Psychoactive Substances Users

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Abstract: Anxiety and depressive disorder are frequents among students (Mullin *et al*., 2015), mainly in association with psychoactive substances use (PASU). In Morocco, mood disorders are the most prevalent among more 15 (Asouab *et al*., 2005). The aim of this study is to identify variation factors of early maladaptive schemes (EMS) and depression among students in a vocational training psychoactive substances (PAS) users or non-users. A survey was conducted on a sample of 144 students, aged 20 to 27 years, (22,84±1,54), including 61 females (42,36 %) and 83 males (57,64%).We used two questionnaires: Rusinek Attitude Questionnaire to evaluate the presence and intensity of 13 EMS and the Mini International Neuropsychiatric Interview (MINI) to diagnose depressive episode among both students with or without PASU. Data were treated by SPSS (21). Results show that PASU is associated with an increase of depression and anxiety disorders. PASU is dependent on sex, number of persons per family and number of students living together. Drug use doesn't depend on BMI like tobacco use which doesn't vary with internship effect. Abandonment is the only EMS differentiating significantly drug users than non-users. Vulnerability is the EMS less activated among PAS users.

Key words: Early Maladaptive Schemes · Depression Episode · Students · Psycho-Actives Substances · Vocational Training

INTRODUCTION

Frequent cannabis use is associated with an increased occurrence of anxiety and depressive disorders in young adults [1, 2], among university students [3] especially for a first consumption before 15 [4]. A study [5] found a high prevalence of anxiety and depression in students of medicine and pharmacy with a predominance of anxiety. In France, while 96% of students consider themselves healthy, 30% said they felt over a period of a fortnight, sad, depressed, hopeless, with loss of interest in activities that they usually like [6]. According to a study realized by the Moroccan Ministry of Health in collaboration with WHO, 48.9% of the population surveyed had at least one mental health disorder (Insomnia, anxiety, nervous twitch, depression, etc.) [7]. Another mental health epidemiological survey [8] conducted on a representative sample of the Moroccan general population (5498 people aged 15 and over), showed that mood disorder is the most prevalent among more 15 (26.5%), the major depressive episode is mostly identified in women with 34.3% against 20.4% for men and that the current generalized anxiety regarding 11. 3% women, compared with 7.7% men.

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Study on the mental health of the general population is a boom, but to our knowledge, there is no study among vocational training students, who are generally derived from disadvantaged environment and therefore, the more exposed to psychoactive substance use (PASU) [9]. In this paper, depression disorder was measured only for the depressive episode. Main symptoms of a depressive episode are: ongoing feelings of sadness, despair, loss of energy and difficulty dealing with normal daily life [10]. Anxiety disorder was evaluated using the early maladaptive schemes (EMS) questionnaire of young. A scheme is a memory consists of body sensations, emotions, cognitions, tendencies to action and narrative memories, or at least narratives attributed to our history [11]. Generally, in depression, there are more negative symptoms as compare to anxiety [12]. The aim of this study is to identify the variation of EMS factors and depression disorder among students in vocational training, for psychoactive substances (PAS) users or no users.

MATERIALS AND METHODS

Subjects: The sample of this study is formed by 144 trainees aged 20 to 27, (22.84±1.54), including 61 females (42.36 %) and 83 males (57.64%) studying for 2 or 4 years, at the Hotelier Institute of Mohammedia city (Northwestern Morocco) below the supervision of the Tourism Ministry. All trainees are included in the survey without any exclusion criteria and are from a medium or disadvantaged socio-cultural environment. 116 (80.6%) of them are boarders and 28 (19.4%) are external living on half board. They all replied to the survey (French proposals were explained in Arabic) conducted by psycho-educational listening team set up in the Institute, consisting of a psychologist, a research professor and an administrative agent, by providing personal information (Age, sex, body mass index (BMI), number of subjects per family, fratery position, accommodation system (Internal vs. external), number of person living together, PASU, etc.).

Instruments: Data was collected by Rusinek Attitude Questionnaire and Mini International Neuropsychiatric Interview.

Rusinek Attitude Questionnaire (RAQ): The RAQ is inspired from Young's questionnaire of early maladaptive schemes study. We used the French version of the

scheme Questionnaire of Young [13,14] including 160 items to evaluate the presence and intensity of 13 EMS (Incompetence, Emotional deprivation, Isolation, Insufficient Self-Control, Mistrust, Self-Sacrifice, Unrelenting Standards, Abandonment, Enmeshment, Vulnerability, Dependency, Emotional inhibition, Fear of Losing control). Each item is assessed by using a point scale from 1 to 6 (The more the score is high, the more the patient considers that the affirmation corresponds to him). We evaluated the activation of EMS using the sum of scores of each item related to the same scheme. The psychometric properties of this scale are very satisfactory: the internal homogeneity is relatively high (On average, r (638) = 0.664, p <0.0001), the first thirteen factors represent 87% of the total variance.

Mini International Neuropsychiatric Interview (MINI): The MINI is a diagnostic interview tool of depression, developed for clinical research, for clinicians, doctors, psychiatrists and psychologists in the United States. It is compatible with the diagnostic criteria defined by the DSM-5. Mini is divided into 16modules, which may be administered separately. We used assessing depressive episode module including 10 items, which we have translated into Arabic. The possible answers to all questions are "Yes" or "No." The psychometric properties of the MINI are satisfactory in terms of validity [15, 16], faithfulness [17-19] and sensitivity [19].

Data Analysis Method: The results were analyzed by GLM (General Linear Model, multivariate) to assess «Consumption of drugs and tobacco effect», «Sex effect», «Family characteristics effect» « residence effect» and «Interaction effect» on depression and 13 EMS. The posthoc analysis was then performed by the Bonferroni test. Variations in the frequency of drug and tobacco use according to family characteristics, to residence and to sex are calculated by the Khi II test. The relationship between age and scores of EMS and depression are calculated by the Pearson correlation coefficient. The significance level was set at p <0.05. Data was treated by SPSS (21).

RESULTS

Effects of Family Characteristics and Habitat on PASU Frequency: Results of the effect of PASU on BMI according to sex are presented in Table 1, while the effect of family characteristics and of residence on the drug and tobacco consumption frequency is presented in Table 2.

Table 1: Effect of PASU on BMI and age, according to sex. Data is reported as average and SD.

| | | Non PASusers | | | PAS users | | | Effect | | Interactions drug x |
		Medium	SD	N	Medium	SD	N	Consumption *(p)*	Sex *(p)*	tobacco x sex *(p)*
						BMI				
Drug	Female	22.93	3.27	54	23.27	4.15	7	NS	NS	NS
	Male	23.22	3.62	55	23.23	2.40	28			
Tobacco	Female	22.45	2.87	42	24.13	4.05	19	0.011	NS	NS
	Male	22.99	3.32	42	23.46	3.19	41			
						Age				
Drug	Female	22.37	1.64	54	22.43	1.62	7.00	NS	0.037	NS
	Male	23.27	1.30	55	23.00	1.59	28.00			
Tobacco	Female	22.48	1.67	42	22.16	1.54	19.00	NS	0.001	NS
	Male	23.29	1.29	42	23.07	1.51	41.00			

NS: non significatif at 0.05.p: signification probability

Table 2: Effects of family characteristics and habitat on PASU frequency.

Factors effect		Drug use (p)	Tobacco use (p)
Sex	-	0.002	0.021
Numerous family	Female	NS	NS
	males	0.38	NS
Number of personne per family	Female	NS	0.02
	males	NS	NS
Position in the fratry.	Female	0.029	NS
	males	NS	NS
Internal vs External	Female	NS	NS
	males	0.013	0.023
Habitat	-	0.05	0.026

NS. Non significatif at 0.05

Table 3: Variation factors of EMS and depression episode among students with PASU

| | Effect of drug and tobacco consumption | | | | | | | Internship effect | | | Family effect | | | | | | | | |
	D	S	DxS	T	S	TxS	TxD	Internship	S	IxS	FN	S	FNxS	NPF	S	NPFx S	PF	Sexe	PF x S
Incompetence	ns	0.003	0.008	0.049	0.043	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	0.042	ns
Emotional deprivation	ns	ns	0.040	ns	ns	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Isolation	ns	0.043	ns	ns	ns	ns	ns	ns	ns		ns	ns	ns	0.037	ns	ns	ns	ns	ns
Insufficient Self-Control	ns	ns	NS	0.020	0.022	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Mistrust	ns	ns	0.008	ns	ns	0.032	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Self-sacrifice	ns	ns	ns	ns	0.042	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Unrelenting Standards	ns	ns	ns	ns	ns	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Abandonment	0.035	ns	0.026	ns	ns	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Enmeshment	ns	ns	ns	ns	ns	ns	ns	ns	0.027		ns	ns	ns	ns	ns	ns	ns	ns	ns
Vulnerability	ns	ns	ns	0.022	ns	0.011	0.005	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Dependency	ns	ns	ns	ns	ns	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Emotionnal inhibition	ns	ns	ns	ns	ns	ns	ns	ns	ns		ns	ns	ns	ns	ns	ns	ns	ns	ns
Fear of Losing control	ns	ns	ns	ns	ns	ns	ns	ns	ns		ns	ns	0.049	ns	ns	ns	ns	ns	ns
Depression	ns	ns	0.023	0.000	0.003	0.003	ns	ns	ns		ns	ns	0.011	ns	ns	ns	ns	ns	0.022

D: drug, T: tobacco ;S: Sexe ; FN: numerous family; NPF: Number of people per family; PF: Position

Fratry ; x: interaction effects ; Comparison with MLG (ANOVA II) p<0.05

Table 4:   Pearson Correlation Coefficient (r) between age and the 13 EMS and depression scores.

Parameters	Users of	
	Drug	Tobacco
Incompetence	0.030	0.005
Emotional privation	0.095	-0.39
Isolation	-0.209	-0.198
Insuffisant self-control	-0.117	-0.067
Mistrust	-0.111	-0.065
Self-sacrifice	0.421*	0.275*
Unrelenting Standards	0.297	0.087
Abandonment	-0.077	-0.088
Enmeshment	0.271*	0.327*
Vulnerability	0.019	0.008
Dependancy	-0.051	0. 27
Emotionalinhibition	-0.078	-0.097
Fearlosing control	0.284	0.213
Depression	-0.030	-0.15

* signification at $p<0.05$

Effect of sex, age and BMI: The overall drug use was 24.3% with (19.4% males, 4.9% females); while tobacco use reached 41.7% among students (28.5% males, 13.2% females): this consumption is significantly sex tributary (Drugs $p<0.002$, tobacco $p<0.021$) and independent from the age of this sample.

The categories of BMI of these trainees, according to WHO norms, show that 77.08% of subjects have a normal weight and 15.28% have overweight. The multivariate analysis (Table 1) shows a significant effect of tobacco use ($p<0.011$) on BMI values in both sexes (22.72 ± 3.09 for non-users, tobacco users (23.66 ± 3.46) and no effect was observed nor at the drug use nor at effect interaction with sex on BMI or on age.

Effect of Familial Characteristics: Of all students surveyed declares to belong to a numerous family (86.4%), more than half (53.5%) live in families consisting of four or five members, 16.0% of them confirmed using drugs. So drug is significantly dependent on the number of family members (Table 2) in boys ($p <0.38$) more than in females (p: ns).

In relation to smoking, addiction is dependent from the number of people in the family among females ($p <0.02$), especially when the family consists of four ($p<0.006$) or five members ($p<0.044$).

Among females, drug use is significantly related to the position in the fratery ($p<0.029$), while among non-users, this relationship remains insignificant. We also observed that more the subject occupies a secluded place in the fratery, more drug use rate increases, this rate peaked (33.3 %; $p<0.05$) when the

subject occupies the 3rd rank in the family. While smoking is statistically independent on the position in the fratery in both sexes (p: ns).

Effect of Boarding School: PASU is significantly dependent on the hosting regime (Internal vs. external) of male students ($p<0.013$; $p<0.023$) more than among females (p: ns) (Table 2): the consumption rate among students with an internal hosting regime reached 67.7 % for drug ($p<0.030$) and 58.5% for tobacco ($p< 0.007$).

We also found that the% of consumption of these two substances increases with the number of persons living together ($p<0.05$) with no gender difference: for each two friends together internally hosting, drug use reaches 25.7% and tobacco use attained 4.8%.

Factors of Variation of EMS and Depression Episode among Students with PASU: Effects of sex, family characteristics and residence of students on scores variation of EMS and depression among drug and tobacco users are shown in table 3. Analysis of correlations between age and the scores of 13 EMS and depression are presented in table 4.

Out of the 14 scores of these psychological parameters, «Abandonment» ($p<0.035$) is the unique parameter which differentiated significantly drug users from non-users, respectively 22.74 ± 9.59 vs 25.38 ± 9.21. But interacting with sex, drug effect differentiates significantly, with varying effects, users from non-users in depression and four EMS: incompetence, emotional deficiency, mistrust and abandonment.

Depression and three EMS (Incompetence, Insufficient self-control, vulnerability) differentiate significantly the profile of tobacco users from non-users and in a very variable manner between sexes ($p<0.05$). «Vulnerability» is the only EMS significantly differentiating users than non-users ($p<0.005$) statistical data specifically show that students with PASU are less vulnerable (23.31 ± 10.11) than no-users (25.17 ± 8.54).

Depression and all EMS, except the isolation scheme ($p<0.037$), does not vary significantly by internship, neither by the number of persons per family or position in the fratery.

Correlation analysis between age and scores of depression and the 13 EMS (Table 4), shows a proportional relationship although small but significant with two schemes « Self-sacrifice» and « Enmeshment » both among drug users (r = 0.421, $p<0.012$; r = 0.271, $p<0.115$) than among smokers (r = 0.275, $p<0.034$; r = 0.327, $p<0.011$).

DISCUSSION

This study helped us to have an idea on possible interactions between PASU and psychological disorders. Depression can't be diagnosed by a simple interview, while the MINI questionnaire could inform us about a possible current depressive episode; however, Symptoms better accounted for by an organic cause or by the use of alcohol or drugs should not be coded positive in the M.I.N.I [20]. But we ignored this instruction because, we couldn't verify it, especially as, relation between PASU and depression and anxiety disorders is much discussed without being able to determine the direction of the causal relationship [21-22]. Likewise, activation of EMS, does not allow us to confirm the presence of anxiety disorders, though all EMS, are hyperactivated in anxious people [23,24,25] and would come in the elaboration of memory structures responsible for anxiety [24] enabling us to consider that high scores in EMS suggests to anxiety disorders at least for a short period preceding the survey.

Global PASU is significantly dependent on sex, which joins other studies [26,27] mostly for some PASU [28]. According to others studies, it is dependent of both sex and age [29]. In our sample, it's not age dependent.

The significant effect of tobacco and not drug consumption on BMI is consistent with other works [30], while some authors found a positive relationship between drug and BMI even if this link is largely due to smoking [31].

Drug use is significantly number dependent of family members in boys; while in girls, this parameter is rather dependent on tobacco use. When the family becomes numerous, the parental control becomes difficult, posing a drug use risk factor [32,33] for males, but also for females who occupy a secluded place in fratery, allowing us to issue the following hypothesis: the role of the family in addiction protection tends to disappear with large family.

PASU is significantly dependent on the hosting regime (Internal vs. external). A Survey of Adolescent Health [34], found that the only protective factor against tobacco use was the fact of living with parents. We also found that the PASU rates increases with the number of people living together.

The "Abandonment" is the only parameter significantly differentiated drug users than non-users. Other researchers [35] also found that the scheme "Abandonment" is among (And not the only) the EMS that differentiates significantly cannabis users than non-

users. In interaction with sex, our results confirm results of the same study [35]. Tobacco users have depressive and anxiety disorders (Incompetence, insufficient self-control and vulnerability) and very variously between the two sexes. Generally, prevalence of depression [8,34] and of anxiety among women is higher than men [8,24,36,37]. However, another study found that boys' state anxiety average is more than girls [38]. PAS users are less vulnerable than non-users. These results may imply two hypotheses, one postulates that addiction is a purpose of self-medication; and the second is that the PASU can contribute to concealing the ability to diagnose a potential vulnerability. This hypothesis is valid for all anxiety and depressive disorders detected in these students.

All schemes studied, except isolation, doesn't vary significantly by internship neither by the number of persons per family or position in the fratery. Isolation varies with the number of persons per family; more students are from large families, less the "Isolation" scheme is activated. All EMS, except the "Insufficient Self-Control", which vary significantly with PASU (Incompetence, emotional deficiency, mistrust, vulnerability and abandonment) were found in a study cited above [24] more activated in anxious children, than, in anxious adults, all 13 EMS have been more dominant, however, this study does not fully consider the psychological individuality [39]. We must also take into account other factors, such as academic study which is associated with anxiety and depression due to the presence of various stresses [40], pre-existing physical diseases as a possible source of risk for the development of mental health problems [41].

CONCLUSION

PASU is associated with an increase of depression and anxiety disorders. PASU is dependent on sex, number of persons per family and number of students living together. Drug use doesn't depend on BMI like tobacco use which doesn't vary with internship effect. Abandonment is the only EMS differentiating significantly drug users than non-users. Vulnerability is the EMS less activated among PAS users. The increase in these studied scores involves the appearance of anxiety and depression symptoms that could be just a temporary state, especially in vocational training where students are in transition from school to the active live on the one hand; and on the other hand because the most of them,

lives away from their families and perhaps for the first time in their lives. Finally, we focus on the coexistence of an anxiety-depression profile represented by unstable behavior emotionally and cognitively and the presence of a correlation between these disorders and the PASU. Most anxio-depressive students are SPAS users. However, some of them remain resistant to PASU. These disorders can be regulated by certain holiday periods spent away from their institute of training or the integration of the world of work; which could evoke the instigator of these training institutions on the emotional state of the students; hence the interest of a cognitive remediation using cognitive behavioral therapy or specific cultural models.

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