

Original Research

Substance Use Disorder, Alexithymia, and Personality Disorders, What is the Link? Pilot African Study

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Academic Editor: Weiwen Wang

OBM Neurobiology

2023, volume 7, issue 3

doi:10.21926/obm.neurobiol.2303176

Received: January 17, 2023

Accepted: July 27, 2023

Published: August 04, 2023

Abstract

Alexithymia and personality disorders are common in substance use (SUD) patients. This association remains understudied and is considered to hurt the course and management of substance use disorder patients. To determine the prevalence of personality disorders (PD) and alexithymia in addiction care patients. Besides, we targeted investigating a possible link between alexithymia, different personality disorders and clinical aspects of substance use disorder including severity. This cross-sectional study was conducted in the Addictology Center of the university hospital of Fez. We recruited 54 patients with a confirmed substance use disorder according to the DSM 5 criteria. We used the psychometric scales of alexithymia (TAS-20) and the personality assessment scale (PDQ-4+). The average age of our sample was 27.07 ± 8.22 . The percentage of poly-consumers of psychoactive substances was around 93%. The alexithymia patients constituted 48% of the sample. We found a significant association between alexithymia and the severity of SUD p-value of 0.033. Alexithymia appeared to be significantly associated with 'Cluster A' of personality disorders p-value of



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0.013 and more specifically with paranoid personality disorder p-value of 0.022. The mean PDQ-4+ score was significantly higher in the alexithymia group of patients (TAS-20 score ≥ 62) p-value of 0.047. 89% reported at least one specific personality disorder. Our results showed a significant association between the presence of a specific personality disorder and the existence of a severe substance use disorder p-value of 0.01. We also found that 'Cluster A' of personality disorder diagnoses are significantly frequent within the severe subgroup of SUD p-value of 0.042. Our study suggested an overrepresentation of alexithymia and personality disorders in patients followed for SUD. It showed a direct link between alexithymia and personality disorder on the one hand, and the severity of the substance use disorder on the other. Extensive studies are required to fully elucidate the weight of alexithymia in SUD and PD. Such investigations would improve the therapeutical approach and the outcome.

Keywords

Substance use disorders; personality disorders; alexithymia; addictology; patient management

1. Introduction

Historically, addictive behaviors have been associated with the concept of "addictive personality". This terminology is now replaced by several personality traits studied separately and considered risk factors for addictive behaviors including impulsivity, sensation seeking, and novelty seeking [1]. Research on alexithymia recommended that one of the traits may contribute to substance dependence [2].

A recent meta-analysis examined the association between alexithymia and substance use disorders (SUD); and suggested a strong global association between alexithymia and SUD, as well as a stronger association within clinical patient populations [3]. An additional preliminary study explored the neurobiological link between alexithymia and SUD in 12 individuals with cocaine dependence, and suggested that alexithymia is associated with neural correlates of reward processing [4].

Alexithymia is characterized by poor emotional regulation and stress management skills, it is also considered a vulnerability factor for medical and psychiatric conditions [5]. Alexithymia has been hypothesized to be a vulnerability factor that predates SUD [6]. Taylor et al. suggested the risk factor role of alexithymia in SUD; this might be explained by inherent factors such as immature self-awareness, and poor cognitive and emotional regulations [2]. Alternatively, alexithymia might result from interactions with other risk factors including drug expectancies, negative affectivity, insecure attachment, executive functions disorders and personality disorders (PD) [6, 7]. Studies speculated that substances compensate for emotional self-awareness deficits [5]. Previously reported papers on SUD have revealed controversies regarding the consideration of alexithymia. Should alexithymia be considered a trait or condition? Hence, it raises the question of the treatment approach to be considered [8]. Haan et al. reported that alexithymia is only a vulnerability factor in SUD and thus reasonably considered in treatment in case of a stable

personality trait. However, other research findings are conflicting on the stability of alexithymia [6]. The high rate of alexithymia in patients with long-term abstinence also suggests an underlying trait structure [8].

In contrast, alexithymia might be a predisposing factor for other psychiatric disorders, raising the specificity of the association with SUD. Indeed, studies suggest a specific link between alexithymia and addiction as a risk factor, and alexithymia might not be univocally related to SUD or other disorders [6]. Alexithymia might be associated with negative affectivity or psychological distress compared to other disorders [6]. Thus, the relationship between alexithymia and substance abuse remains unclear.

Hence, the first aim of our study is to describe the substance use characteristics in patients recruited in the Addiction Center of the University Hospital of Fez, Morocco. The second aim is to evaluate the prevalence of personality disorders and alexithymia in the same population and the third aim is to investigate the potential relationship between alexithymia and the different personality disorders on one side, and between alexithymia and clinical aspects of substance use on the other side. Finally, it hypothesized that both these factors might be involved in initiating substance abuse that is evolving towards a full-blown disorder. This constitutes a major question in addictology because it has major implications in the pathogenesis, clinical and therapeutic approaches.

2. Material and Methods

This cross-sectional study was conducted in the Addictology Center of the University Hospital Hassan II in Fez, Morocco. The study was achieved over one year from October 2019 to October 2020.

The recruitment was achieved among consulting as well as the hospitalized patients in the addictology center during the study. All patients gave their written consent to be included in the study. Besides, legal guardians provided consent for patients below 18 years old. The inclusion criteria consisted of SUD according to the DSM 5 criteria. The exclusion criteria consisted of refusal to participate in the study, and any additional psychiatric comorbidity such as psychomotor instability, suicidal ideations, and a history of a psychotic disorder or presenting psychotic symptoms during the interview.

Our questionnaire covered the sociodemographic data, medical, surgical, psychiatric and legal history. The substance use covered the type of used substances, the age at each substance's first use, and the average used quantity per day. Each substance used was verified using 11 criteria listed in the DSM 5. This allows us to check whether it was a confirmed substance use disorder and then specify the severity of the disorder.

It was also requested to indicate whether patients seen in consultation were in remission and specify if it was an early or prolonged remission according to the DSM-5 criteria [9].

Alexithymia was assessed by the French version of the Toronto Alexithymia Scale 20 (TAS-20), which showed good reliability with a Cronbach's alpha score of 0.81 and test-retest reliability of 0.77 obtained using Chi-2 test for comparison of percentages with a p-value <0.01; and adequate levels of convergent and concurrent validity [10, 11].

Personality was explored by the French version of the Personality diagnostic questionnaire-4+ (PDQ-4+) based on the DSM-IV-TR, which investigates the presence or absence of the ten DSM-IV

personality disorders; in addition, both additional personalities included depressive and passive-aggressive.

The statistical analysis was performed using the statistical analysis software SPSS (Statistical Package for Social Sciences) for Windows, version 23.0 (SPSS, Inc., Chicago). Quantitative variables were expressed in means and standard deviations or median and quartiles; the qualitative variables were expressed in numbers and percentages. We used mean and percentage comparison tests to identify factors related to Alexithymia, personality disorders, and addiction including:

- Chi-2 test for comparison of percentages;
- Fisher's test for comparison of percentages;
- Student's T-test for comparison of means; and a p-value < 0.05 was considered significant.

The descriptive statistics allowed for categorizing patients' character according to the substances used, including Cannabis, Benzodiazepines, Alcohol, Cocaine, Tobacco, Heroin, Inhaled solvents substances. Analyses of Substance of addiction subgroups with Alexithymia versus 'No Alexithymia or possible Alexithymia' included Tobacco, Cannabis, Alcohol, Benzodiazepines, Solvents, Cocaine, Heroin, and Ecstasy. Besides, we analyze the Severity of substance use disorder in Alexithymia and Personality disorders patients.

The used statistical tests allowed comparing subgroups with Alexithymia versus No 'Alexithymia and/or possible Alexithymia'; each compared subgroup consisted of personality disorders including Paranoid, Schizoid, Schizotypal, Narcissistic, Antisocial, Borderline, Histrionic, Dependent, Avoidant, Obsessive, Depressive, Cluster A, Cluster B, and Cluster C.

Besides, we have compared the mean PDQ-4+ score between the alexithymic group and non-alexithymic or possibly alexithymic groups.

3. Results

3.1 Descriptive Results

3.1.1 The Sample Description

54 patients were recruited including 22 (41%) inpatients in the addictology center and 32 (59%) outpatients. The average age of participants was 27.07 ± 8.22 and ranged from 17 to 52 years old. They were all males.

30 (56%) patients were jobless, compared to 21 (39%) who were engaged in various professional activities. The remaining three patients were high school students.

42 (78 %) participants quit their studies in high school or college, 15 (28%) related this to the early onset of addictive behaviors, 19% explained it by academic failure, 17% left school for lack of interest and 9% for lack of financial support. The remaining cases presented other reasons such as stressful events or discharge from school due to lack of discipline (Table 1).

Table 1 Character of patients according to the type of the stressful event.

Stressful event	workforce
Sexual assault of patient's daughter	1
Abusive and violent father	2
Parental infidelity	1
Loss of job	2
Physical assault	1
Sexual assault in early adolescence	2
Unstable toxic relationship with partner	1
Expulsion from a foreign country	2
Divorce and parental abandonment	1
Road traffic accident with secondary functional impotence	1
Father violent towards mother	1
Assisted alone in death of grandmother at age 3	1
Brother refused to give him his part of the heritage	1
Emotional break-up	2
Witness to an accident	1
Death of the mother	1
Suicide of the father	1

51 (94%) out of 54 patients have spent their childhood with both parents. Two patients grew up with their mother due to the parents' separation and the departure of the father; and a third patient grew up with his father due to the mother's divorce and remarriage.

42 (78%) of patients were single compared with 10 (18%) who were married and 2 (4%) who were divorced. Most recruited patients (82%) do not have children. 37 (68%) patients did not report any conflicts with their family members during the study. While 11 (20%) patients described a conflictual relationship with one or both parents. At least one stressful or traumatic event occurred recently or during childhood or early adolescence in 19 (35%) subjects. These various events are reported in Table 1.

In our sample, the majority of patients 39 (72%) did not report any previous criminal record, while 8 (15%) patients reported detention history for a period ranging from 19 days to one year for various legal reasons such as thieving, assault and injury, sexual harassment, carrying knives, etc.; while 7 (13%) subjects reported to underwent custody, mostly for possession of illicit substances or for being drunk.

The addictive behaviors started quite early in most of our patients. The average age at the start of drug use was 15.7 ± 2.93 and ranging from 11 to 25 years old. We retained solely the substances that fulfilled the criteria of SUD according to the DSM 5; thus:

- 42 (78%) patients have had a cannabis use disorder,
- 34 (63%) patients have had a smoking disorder,
- 23 (43%) patients have had a sedative and anxiolytic use disorder, especially benzodiazepines,
- 22 (41%) patients have had an alcohol use disorder,
- 11 (22%) patients have had a stimulant use disorder such as MDMA (ecstasy),
- 9 (17%) patients have had a cocaine use disorder,

- 7 (13%) patients have had a solvents use disorder,
- 4 (7%) patients have had an opioid use disorder like heroin.

Besides 93% of subjects reported multiple substance use (polyaddiction); they have a use disorder of more than one substances.

Since most patients have a polyaddiction, we assessed the severity of the disorder for each substance separately in each sample patient. Then we selected the most severe use disorder as the major SUD. The “selected” substance is designating the psychoactive substance to which the subject is most severely addicted; it is the main psychoactive substance that motivated the request for care. This was mainly cannabis for 23 (43%) patients, and benzodiazepines for 20 (37%). Details are reported in Table 2. The severity scale showed severe substance use disorder (85%) and 7 (13%) patients showed a moderate severity disorder and only 1 (1.8%) subject showed a mild disorder. Besides, only 4 (7%) of 54 patients were in early remission.

Table 2 Character of patients according to the substance to which the addiction is most severe.

Involved Substance	Number of Subjects	Percentage
Cannabis	23	43%
Benzodiazepines	20	37%
Alcohol	17	31%
Cocaine	7	13%
Tobacco	6	11%
Heroin	4	7%
Inhaled solvents	2	4%

3.1.2 Alexithymia Data

The difficulty to identify the feelings was revealed by Toronto Alexithymia Scale (TAS-20), this factor was represented by the DIF (Difficulty identifying feelings) subscale. The mean score in our sample was 24.5 with a standard deviation of 6.2 and a median of 31. The score varies between extreme values of 10 and 34.

The Difficulty in expressing feelings showed by TAS-20 was represented by the DDF (Difficulty Describing feelings) subscale. The mean score in our sample is 13.8 with a standard deviation of 4.8 and a median of 13. The score varies between extreme values of 7 and 25.

The pragmatic thinking content showed by TAS-20 was represented by the EOT (Externally Oriented Thinking) subscale. The mean score in our sample was 21.9 with a standard deviation of 4.5 and a median of 22.5. The score varies between extreme values, namely 12 and 34. Besides, the total score corresponded to the sum of the three previous scores. The average score in our sample was 60.3 with a standard deviation of 11.5 and a median of 66.5. The score varies between extreme values of 40 and 81.

Based on the last subsection's results, the samples were divided into the following three subsamples depending on the alexithymia classification:

1. Non-alexithymia patients with a TAS-20 score less than or equal to 51. They represented 11 (20%) of the sample.

2. Patients with potential alexithymia, recorded a score between 52 and 60 and represented 17 (31%) of the sample.
3. Patients with confirmed alexithymia recorded a score greater than or equal to 61. They constituted 26 (48%) of the sample.

3.1.3 Personality Data

In our series, the score of the Personality Diagnostic Questionnaire (PDQ 4+) varied between 29 and 77 with a mean score of 47.2 and a standard deviation of 13.7. It corresponded to a general index of personality perturbation of 93. The threshold of 28 was required to consider a personality disorder. All patients demonstrated a score above this threshold. Three subjects showed a suspicious score since they answered 'True' to item 64 consisting of "An atomic war would not be such a bad idea". About (41) 76% of the sample showed at least two specific PD. We found up to 4 comorbid PD in 8 (15%) subjects. 7 (13%) subjects have had only one specific PD and 6 (11%) subjects have had none of PD. 25 (46%) subjects have had at least one cluster A PD. 29 (54%) subjects have had at least one cluster B PD. 30 (56%) subjects have had at least one cluster C PD including depressive and passive-aggressive personality. It is noticed that histrionic personality wasn't found in the studied sample (Figure 1).

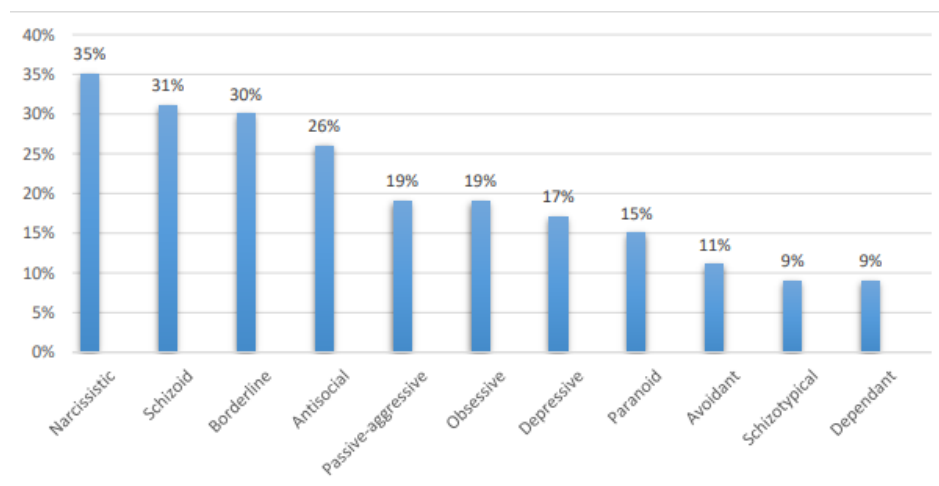


Figure 1 Prevalence of different personality disorders in our sample.

3.2 Analytical Results

Univariate analysis: The univariate analyses were conducted on combined comorbid aspects of each revealed disorder and included:

Alexithymia and Addictive Substance: The difference in percentages among patients with solvent addiction between those with and without Alexithymia was statistically significant with a p-value of 0.047 (Table 3). Alexithymia patients seem to be addicted to solvents (inhaled glue) more than others.

Table 3 Association between substance types and alexithymia revealed the most significant substance that is solvent with associated p-values obtained using Fisher's test for comparison of percentages.

Substance of addiction	Alexithymia	No Alexithymia or possible Alexithymia	P
tobacco	17 (50%)	17 (50%)	0.783
Cannabis	19 (45.2%)	23 (54.8%)	0.520
Alcohol	9 (40.9%)	13 (59.1%)	0.418
Benzodiazepines	12 (52.2%)	11 (47.8%)	0.784
Solvent	6 (85.7%)	1 (14.3%)	0.047
Cocaine	4 (44.4%)	5 (55.6%)	1
Heroin	3 (75%)	1 (25%)	0.342
Ecstasy	6 (54.5%)	5 (45.5%)	0.741

Alexithymia and PD: Alexithymia was significantly associated with Cluster A personality disorders, specifically paranoid personality disorder. However, we have not found any significant association with any of other specific PD or B and C clusters (Table 4).

Table 4 Association between personality disorders and alexithymia demonstrated the most significant correlation for paranoid and 'cluster A' with associated p-values obtained using - Fisher's test for comparison of percentages.

Personality disorders	Alexithymia	No Alexithymia or possible Alexithymia	P
Paranoid	7 (87.5%)	1 (12.5%)	0.022
Schizoid	10 (58.8%)	7 (41.2%)	0.382
Schizotypal	4 (80%)	1 (20%)	0.184
Narcissistic	10 (52.6%)	9 (47.4%)	0.777
Antisocial	8 (57.1%)	6 (42.9%)	0.540
Borderline	9 (56.3%)	7 (43.8%)	0.554
Histrionic	-	-	-
Dependent	4 (80%)	1 (20%)	0.184
Avoidant	3 (50%)	3 (50%)	1
Obsessive	5 (50%)	5 (50%)	1
Depressive	6 (66.7%)	3 (33.3%)	0.286
Cluster A	17 (68%)	8 (32%)	0.013
Cluster B	18 (62.1%)	11 (37.9%)	0.063
Cluster C	18 (60%)	12 (40%)	0.061

The difference in mean PDQ-4+ score, reflected the severity of PD, and revealed a statistically significant difference between the group of alexithymia patients (TAS-20 score ≥ 62) and the group of non-alexithymia, or possibly alexithymia patients (TAS-20 score < 62) p-value of 0.047 (Table 5). Furthermore, no significant association between age and substance use onset was found either with alexithymia or with the three clusters grouping the different personality disorders.

Table 5 Comparison of the mean PDQ-4+ score between the alexithymic group and the non-alexithymic or possibly alexithymic group revealed significant difference with associated p-values obtained using Student's T test for comparison of means.

	Categories	N	Average PDQ score	Standard deviation	Mean standard error	Test	P-value
Alexithymia	Absent/Possible	28	44.643	13.6116	2.5723	-2,039	0.047
	Present	26	52.269	13.8667	2.7195		

The severity of substance use disorder about alexithymia and PD: The Severity of substance use disorder was significantly associated with alexithymia and personality disorders in cluster A with a p-value of 0.033 and 0.042 respectively. Alexithymia, Cluster A of PD including paranoid, schizoid, and schizotypal personality were all the most common in patients with a "severe SUD" (Table 6).

Table 6 Significant association between substance use disorder severity, alexithymia, and personality disorders especially 'cluster A' using Fisher's test for comparison of percentages.

		Severity of substance use disorder		
		Mild to moderate	Severe	P-value
Alexithymia	No alexithymia or possible alexithymia	7 (25%)	21 (75%)	0.033
	Alexithymia present	1 (4%)	25 (96%)	
Personality disorders	Cluster A	1 (4%)	24 (96%)	0.042
	Cluster B	4 (13.8%)	25 (86.2%)	1
	Cluster C	2 (6.7%)	28 (93.3%)	0.12

The severity of the substance use disorder was significantly associated with the existence of a specific personality disorder with a p-value of 0.01. Specific PD was more common in patients with a SUD classified as "severe" (Table 7).

Table 7 Significant association between severity of substance use disorder and existence of personality disorder according to PDQ 4+ with associated p-values obtained Fisher's test for comparison of percentages.

		Severity of SUD		P
		Mild to moderate	Severe	
Personality disorder	No	3 (50%)	3 (50%)	0.01
	Yes	5 (10%)	43 (90%)	

3.3 Multivariate Analysis

The multivariate analyses were obtained after adjusting all the factors used in the univariate analysis, and results are expressed in Table 8; namely:

- Cannabis dependence was significantly related to alexithymia with a p-value of 0.038;
- Legal history was significantly related to Cluster B of PD with a p-value of 0.049;
- Medical or surgical Histories and traumatic history or stressful events were significantly associated with cluster C with a p-value of 0.012 and 0.036 respectively.

Table 8 Multivariate analysis results with associated p-values.

Colonne1	Alexithymia		Cluster A		Cluster B		Cluster C	
	P	Exp(B)	P	Exp(B)	P	Exp(B)	P	Exp(B)
Age	0.116	0.922	0.259	0.943	0.389	0.961	0.327	0.954
Conflictual relationship with family	0.889	1.122	0.215	0.377	0.47	0.659	0.5	0.679
Parental socioeconomic level	0.146	0.463	0.295	1.656	0.126	4.278	0.745	1.382
Traumatic/stressful event	0.551	1.724	0.96	1.046	0.142	1.724	0.036	29.775
Psychiatric comorbidity or history	0.163	1.565	0.632	1.15	0.732	1.396	0.095	2.212
Surgical medical condition	0.557	0.558	0.363	0.418	0.802	0.787	0.012	0.016
Legal history	0.565	0.727	0.717	1.213	0.049	3.529	0.086	0.322
tobacco	0.431	2.058	0.655	1.443	0.408	0.454	0.054	0.141
Cannabis	0.038	0.118	0.376	1.868	0.786	0.81	0.333	0.434
Alcohol	0.949	0.952	0.344	0.468	0.151	3.948	0.388	0.446
Benzodiazepines	0.929	1.08	0.741	1.29	0.705	1.407	0.086	0.162
Solvent	0.122	7.094	0.233	3.331	0.417	3.009	0.527	2.209
Cocaine	0.499	0.488	0.854	1.478	0.999	0	0.69	0.518
Heroin	0.136	16.925	0.999	69.848	0.989	1.031	0.786	0.81
Ecstasy	0.567	1.756	0.259	0.943	0.389	0.961	0.151	3.948
Constant	0.116	50.419	0.295	1.656	0.47	0.659	0.067	100.181

4. Discussion

Published literature reported studies of personality traits, psychopathology, and coping styles during the development of SUD. However, recent evidence revealed other factors that might engage a crucial role in SUD development [7]. Larger studies suggested that alexithymia is quite common in patients with SUD; they reported that association with SUD might interfere with the success of psychotherapy approaches [5].

When alexithymia is considered a categorical variable, its prevalence in the general population is ranged between 30 and 67%. In comparison, it represents a range between 6 and 17% of adults with SUD in both abstinent and in treatment patients [6]. Indeed, Guibaud et al. and Farges et al. have shown through case-control studies that the prevalence of alexithymia was significantly higher in the context of addictive behaviors and presented percentages varying between 41% and 63% [12, 13]. A more recent study by Lyvers et al. in Australia used TAS-20 and found 40% alexithymia in 100 addiction inpatients compared to 18.69% of 107 controls [14]. In our study, the prevalence of alexithymia was 48% which fits within the intervals reported by Guibaud et al. and

Farges et al. [12, 13]. These large variations in the rates of alexithymia could be illustrated by the different assessment methods used and the recruited sample characteristics including the severity of the disorder, the mode of provided care in terms of outpatient versus inpatient, and the substance used by the studied subjects such as alcohol, opioids, etc. [6]. Despite the reported high prevalence of alexithymia in SUD, fewer studies have investigated this issue [5].

A significant positive association between alexithymia traits and craving, the severity of disorders and associated difficulties supported an existing link between alexithymia and SUD [6]. Inhere reported results reveal a significant association between alexithymia and the severity of SUD with a p-value of 0.033. Alexithymia was more frequent in subjects with a severe substance use disorder according to the classification suggested in the DSM-5. Other studies have also shown a significant association between the severity of addiction and alexithymia in addicted patients [6, 7]. This suggests that alexithymia would significantly contribute to predicting the severity of substance use.

The overall prevalence of PD ranges from 10% to 14.8% in the normal population and from 34.8% to 73.0% in SUD patients, the median is 56.5% [15]. Similar results were found in patients with SUD who are not seeking treatment. This suggests that a higher apparent prevalence of PD might not be related exclusively to Berkson bias consisting of hospital ward selection bias leading to a higher prevalence of comorbidity in clinical samples [15].

A recent study found comorbidity with personality disorder of 46% in a sample of 61 admitted patients in the addiction unit in southern Norway including 21 patients with a single PD, three patients with two PD, three patients with three PD and one patient with four comorbid personality disorders; this study used 'Structured Clinical Interview' of DSM-IV, Axis II Personality Disorders (SCID II) [16]. Preuss et al. diagnosed 652 (60.4%) personality disorder cases among 1079 patients who fulfilled the DSM IV criteria for substance abuse [17].

In our studied sample, 25 (46%) subjects expressed at least one 'cluster A' personality disorder, 29 (54%) subjects showed at least one 'cluster B' personality disorder, 30 (56%) subjects revealed at least one 'cluster C' personality disorder. According to most studies, 'Cluster B' personality disorders are the most prevalent in patients with a substance use disorder. However, the same study conducted by Langàs et al. on 61 subjects treated for substance addiction in Norway in 2012 demonstrated that the difference between group B and group C diagnoses was not statistically significant [16]. Group C diagnoses were numerically more prevalent when they included diagnoses below the SCID II cutoff [16]. Narcissistic personality disorder was the most prevalent in our series; it was present in 19 (35%) subjects of the sample, while schizoid personality disorder occupied the second position in 17 (31%) sample patients. Borderline personality and antisocial personality showed frequencies of 30% and 26% respectively. In the Norwegian study of Langàs et al., the most frequent personality disorders were antisocial personality (16%) followed by borderline personality (13%). Paranoid, avoidant, obsessive-compulsive and unspecified personalities represented 8% of each. Schizotypal and dependent personalities were found in two patients [16]. Preuss et al. revealed a relatively different distribution of personality disorders in substance-dependent patients; the most frequently diagnosed personality disorders in his sample were obsessive personality (31.4%) followed by borderline personality (26.1%) and narcissistic personality (18.6%), then paranoid (17.8%) and antisocial (15.5%) personalities [17]. Langàs et al. compared the different diagnoses of personality disorders in their patients' sample with the global community sample. They found a particularly high prevalence of antisocial (16.4% versus 0.7%),

borderline (13.1% versus 0.7%), paranoid (8.2% versus 2.4%), obsessive-compulsive (8.2% versus 2.0%) and avoidant (8.2% versus 5.0%) personalities among their patients [16].

The prevalence pattern of personality disorders in substance-dependent patients differs from that found in patients with other mental health diagnoses. In patients with mood or anxiety disorders, obsessive-compulsive, paranoid and avoidant personalities are the most prevalent. In contrast, antisocial personality is much less prevalent than in patients with substance use disorder. This may well refer to impulsivity, a personality trait that is quite recurrent in several specific personality disorders. Indeed, impulsivity, a personality-based risk factor for addictive behavior, facilitates the individual's engagement in risky behaviors. The discrepancy in the results reported in the literature can be explained by the selection of samples and the evaluation methods. Besides, it might be due to using PDQ-4+ as a screening tool for personality disorders, which differs from SCID II.

Our results show a significant association between the existence of a specific personality disorder and the existence of a severe substance use disorder with a p-value of 0.01. Similar results were reported in a Norwegian study achieved in 2012; thus, the subgroup diagnosed with a personality disorder showed several signs of severity of substance addiction; higher Drug Use Disorder Identification Test DUDIT scores were recorded reflecting doubled daily nicotine consumption, an earlier age of onset of substance use and a higher number of substance use disorder diagnoses. The German study confirmed that personality disorder was associated with a more severe profile of alcohol use disorder [16, 17]. We also noticed in our patients that 'Cluster A' personality disorder diagnoses are significantly more frequent in the subgroup with a substance use disorder categorized as "severe" with a p-value of 0.042. This result is inconsistent with the German study which suggested that 'Cluster B' personality disorders are the most associated with severe features of alcohol use disorder [17]. More specifically, Preuss et al. found a correlation between antisocial personality disorder and the early onset of alcohol use, which was a marker of the disorder's severity. We noticed a large discrepancy with our work when considering the study's methodology since Preuss et al. used SCID II which is based on DSM IV to identify personality disorders. Besides, Preuss et al. considered the severity perception to be associated with the number of DSM IV criteria, the age of onset of consumption and are applied exclusively to alcohol use disorder. In addition, Preuss et al. used statistical analysis consisting of linear regression analyses [17]. This methodological dissimilarity could explain the divergence from our results.

We found a significant association between diagnosing one or more 'Cluster B' personality disorders and a criminal history with a p-value of 0.049. This result is not unexpected since personality disorders in our sample have included mostly antisocial personality. The patients' biographies were marked by instability and often marked by condemnations.

In our study, alexithymia seems to be significantly associated with cluster A personality disorders p-value of 0.013 and more specifically with paranoid personality disorder p-value of 0.022. Considering PDQ-4+ score as a dimensional scale measuring the severity of the personality disorder and given the difference in the mean of the PDQ-4+ score is statistically significant between the group of alexithymia patients since TAS-20 score ≥ 62 and the group of non-alexithymia or possibly alexithymia patients with TAS-20 score < 62 and p-value of 0.047; it is possible to suggest a link between the severity of the personality disorder in its dimensional design and the existence of alexithymia. This result supports the hypothesis that alexithymia is a

dimension of personality. In several reports, Lysaker et al. had treated the hypothetical relationship between personality disorders and alexithymia. These authors compared the level of alexithymia between three groups of subjects. They concluded that the group with borderline personality disorder and the group of schizophrenic patients have higher levels of alexithymia compared to the group of subjects diagnosed with substance addiction [18]. In another study focusing only on 'Cluster C' personality disorders, Lysaker et al. found that relatively higher levels of alexithymia were associated with more 'Cluster C' personality traits but mainly in the presence of deficits in metacognitive fluency after controlling for the overall level of psychopathology.

A 'Cluster C' personality disorder feature includes dependence, avoidance, and obsessive-compulsive traits and represents anxious and fearful behaviors that include seeking excessive support or control. They have noticed a coexistence with various psychiatric disorders which are interesting in substance use disorders given their potential as a barrier to recovery. Alexithymia has been linked to interpersonal difficulties related to those seen in Cluster C traits and substance use disorders, including risk factors for relapse.

Other authors have investigated 'Cluster B' disorders and have not found any specific link with alexithymia. Ritzl et al. studied emotion recognition and alexithymia in patients with histrionic, narcissistic and borderline personality disorders and compared them to each other and to healthy controls. They concluded that it is not corresponding to the type of personality disorder that plays the key role, rather than the severity of psychopathology that predicts the severity of emotion recognition deficits and alexithymia [19]. Pluta et al. compared 30 patients with borderline personality to 38 controls and have not found any significant difference in the degree of alexithymia after controlling for intelligence, depressive symptoms and anxiety [20].

This work is the first to be achieved in Morocco and among the first in Africa to approach the link between alexithymia, personality disorder and substance use disorder. Indeed, it is required to analyze the link between these three concepts to better describe the relationship connecting them.

We have shown that these three psychopathological states might coexist together in the same person, and they are associated more often than previously considered. This allows us to raise new hypotheses about the origin and the development of substance use disorder and to investigate the concept of alexithymia and its link with addiction and personality aspects.

Therefore, this study examined the interaction between personality and substance abuse from a new angle and suggested alexithymia to be a central factor associated with substance use disorders.

5. Biases and Limitations

Our study underwent limitations that are summarized as follows:

First, our recruitment was conducted within a single hospital center with a limited clinical population. The sample of patients remains limited and heterogeneous, while recruiting a convenient sample is highly required.

Second, our study population was exclusively male. The reason for hospitalization or consultation of these patients remains varied, and depends on their comorbidities, their antecedents and their duration of psychiatric follow-up; they also differ in sociodemographic and traumatic life events. This might constitute a probable selection bias.

Although we chose a quantitative assessment of psychopathology for feasibility, the selected scales also have limitations.

Third, the cross-sectional nature of our work does not allow direct causal links or directionality between the associations found.

Finally, further clinical research, particularly comparative and longitudinal, is required to provide a better understanding of substance use disorders and evaluate their relationship with alexithymia and personality disorders.

We could suggest a comparative study between a larger clinical population recruited within several addictology centers including both sexes and an additional control population.

6. Conclusions

The results of this study require adjusting the diagnostic approaches. Therefore, suggesting to adjust the treatment approach for patients with substance use disorders. This has to take into account all the psychopathological specificities of this population and address the situation in a more global framework without neglecting the socioeconomic, family considerations, or the fundamental role of psychotherapies. This would support the association entities objectified by this study. Hence, systematizing the screening of alexithymia and personality disorders in patients of addictology centers during the first interviews using appropriate validated tools will contribute to better elucidating the multidimensional links.

Author Contributions

FQ has recruited patients, follow-up, assessment, data collection, first draft editing; SB has contributed to the discussion, editing, reviewing; AK conducted data collection; GL conducted data collection; ZE conducted data collection; AC supervision; RA conducted data collection and supervision; AB supervision

Competing Interests

The authors have declared that no competing interests exist.

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