



SUBSTANCE-RELATED AND ADDICTIVE DISORDERS: SUICIDE RISK ASSESSMENT

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ABSTRACT

With the publication of the DSM-5 manual, gambling is placed in the category of "behavioral addictions" and renamed Gambling Disorder, along with substance addictions, in the substance and addictive disorders category. A change is made, compared to the DSM-IV that we could consider fundamental that is the shift of gambling from the impulse control chapter to the addiction chapter, in line with scientific research in recent years that has placed gambling closer to the addictive disorder.

The hypothesis of this paper is to test whether between the relevancies and risk factors involved in substance use disorders and addiction disorders, of which gambling disorder is currently the only categorized disorder, there may be an analogy for what concerns suicide risk.

KEYWORDS: *Gambling disorder; addictions; suicide risk*

LIST OF ABBREVIATIONS

SD= Standard Deviation; BHS= Beck Hopelessness Scale; GMDS= Gotland Scale for Assessing Male Depression SHSS= Suicidal History Self-Rating Screening Scale; ASL= Local Health Unit;

INTRODUCTION

Suicidal behaviors are among the major social and health issues worldwide. It is estimated that between 10% and 18% of adults on our planet experience thoughts of suicide at some point in their lives, with 3% to 5% of them attempting to take their own lives (Pompili & Tatarelli, 2010). Substance dependence in patients without other psychiatric disorders is calculated to contribute to the phenomenon in a range between 5% and 10% (Pompili & Tatarelli, 2007). It is important to consider that the data related to the suicide rate is likely underestimated due to the difficulty of making a correct assumption of suicide, rather than accidental death from overdose, accident, or even homicide.

Pathological gambling, in turn, due to some of its peculiarities, activates mechanisms very similar to those of substance dependencies. Over the years, an ever-growing number of researchers have noticed that especially alcoholism, substance abuse, and pathological gambling share close similarities. All these disorders involve states of activation that either increase or decrease the level of awareness in individuals. In gamblers, a genuine withdrawal syndrome can be found, with symptoms similar to opioid withdrawal. Furthermore, it has been observed that drinking, drug use, and gambling are sometimes carried out simultaneously or in sequence.

In the DSM V (American Psychiatric Association, 2013), gambling is placed in the category of "behavioral addictions" and renamed Gambling Disorder, alongside substance dependencies, under the category of "Substance-Related and Addictive Disorders."

The hypothesis of this study is to verify whether there might be an analogy among the associations and risk factors related to substance use disorders and addictive disorders, of which gambling disorder is currently the only categorized disorder, concerning the risk of suicide.

The participants in the research are 149 patients (80 males and 69 females) affiliated with ASL RM/6, during the period from July 2013 to July 2014. The average age of the patients is 44.42 years (SD= 11.50; range: 19-75 years). Inclusion criteria were an age of 18 years and older; exclusion criteria included major central nervous system pathologies (epilepsy, dementia, Parkinson's, etc.), and any other condition that would prevent completion of the assessment, including lack of informed consent. The research has been approved by the local ethics committee.



MATERIALS AND METHODS

All participants completed a sociodemographic questionnaire, which was useful for evaluating key sociodemographic variables such as age, gender, and education.

Additionally, they underwent a battery of tests, including:

- Temperament Evaluation of Memphis, Pisa, Paris, and San Diego - autoquestionnaire version (TEMPS-A) (Akiskal et al., 2005);
- Beck Hopelessness Scale (BHS) (Beck and Steer, 1989);
- Gotland Scale for Assessing Male Depression (GMDS) (Rutz, 1999);
- Suicidal History Self-Rating Screening Scale (SHSS) (Innamorati et al., 2011);
- Childhood Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998).

Table 1 presents the main clinical and socio-demographic data of the sample. The sample composition based on the primary substance of abuse is distributed as follows: heroin 40 patients (26%), cocaine 34 patients (22.1%), alcohol 39 patients (25.3%), and gambling 36 patients (23.4%). 33.6% of the patients reported abusing at least one other substance in addition to the primary one, particularly alcohol (16.1%).

Table 1

| Variables | Frequencies | % |
|--------------------------------------|-------------|---------|
| Women | 69 | 53,7 |
| Age – Mean (SD) | 44,42 | (11,50) |
| Age at onset of behavior – Mean (SD) | 26,14 | (11,85) |
| Age of continued use – Mean (SD) | 30,54 | (11,95) |
| Age of first treatment – Mean (SD) | 36,17 | (11,99) |
| Primary substance of abuse | | |
| Heroin | 40 | 26 |
| Cocaine | 34 | 21,1 |
| Alcohol | 39 | 25,3 |
| Gambling | 36 | 23,4 |
| Polyabuse | 50 | 33,6 |
| TEMPS-A | | |
| Depression – Mean (SD) | 10,11 | (3,90) |
| Cyclothymia – Mean (SD) | 9,53 | (4,12) |
| Hyperthymia – Mean (SD) | 10,05 | (4,52) |
| Irritability – Mean (SD) | 6,71 | (3,92) |
| Anxiety – Mean (SD) | 12,23 | (5,71) |
| BHS – Mean (SD) | 8,44 | (4,62) |
| GMDS – Mean (SD) | 11,08 | (7,95) |
| SHSS – Mean (SD) | 2,84 | (2,76) |
| CTQ | | |
| Emotional Abuse – Mean (SD) | 7,67 | (4,04) |
| Physical Abuse – Mean (SD) | 9,12 | (4,62) |
| Sexual Abuse – Mean (SD) | 6,97 | (3,47) |
| Emotional Neglect – Mean (SD) | 13,51 | (5,02) |
| Physical Neglect – Mean (SD) | 10,65 | (2,63) |
| Total Trauma – Mean (SD) | 47,92 | (15,47) |

RESULTS

The data analysis was conducted using the statistical software SPSS 17.0 for Windows (IBM, Somers, NY, USA).

A comparison between the means of patients with or without polyabuse and with pathological gambling (PG) vs. substance dependence was performed using a series of independent samples t-tests. The comparison between patients with substance abuse (heroin, cocaine, alcohol) was carried out through Analysis of Variance (ANOVA). Post-hoc comparisons were executed using the Tamhane test. For variables measured on a nominal scale, a series of χ^2 chi-square tests were conducted.

Differences among patients based on the type of substance abuse

Substance abuse and socio-demographic differences

Socio-demographic differences based on the main substance of abuse are presented in **Table 2**. No significant differences were observed concerning age, gender, marital status, occupational status, and education level. Patients dependent on alcohol, compared



to patients with cocaine dependence, reported a significantly higher mean age at the onset of problematic behavior (25.00±11.09 vs. 19.71±4.76; $p = 0.032$). Alcohol-dependent patients also, in comparison to patients dependent on heroin and cocaine, reported a significantly higher mean age related to the continued use of the substance (31.27±10.59 vs. 23.82±6.04; $p = 0.001$; 31.27±10.59 vs. 25.38±7.34; $p = 0.024$) and the mean age of the first treatment (38.97±10.27 vs. 28.56±6.57; $p < 0.001$; 38.97±10.27 vs. 29.68±6.65; $p < 0.001$). Furthermore, patients with heroin and cocaine dependence, compared to alcohol-dependent patients, were more likely to report the abuse of a second substance (55% vs. 12.8%; $\chi^2_1 = 15.62$; $p < 0.001$; 44.1% vs. 12.8%; $\chi^2_1 = 8.05$; $p = 0.003$). Although the mean age was also significantly different among the three groups, post hoc analyses did not identify significant differences.

Table 2

| | Heroin (40) Mean (SD) | Cocaine (34) Mean (SD) | Alcohol (39) Mean (SD) | Test | | <i>p</i> | post hoc test |
|---|-----------------------------|---------------------------|---------------------------|-------------|------------|------------------|---------------------------|
| | | | | $F_{2;110}$ | χ^2_2 | | |
| Age | 43,83±9,53 | 39,09±8,36 | 44,64±11,39 | 3,27 | | 0,042 | A = B = C [#] |
| Males - N (%) | 22 (55) | 19 (55,9) | 20 (51,3) | | 0,18 | 0,914 | |
| Married or in a stable relationship – N (%) | 14 (35) | 13 (39,4) | 16 (41) | | 2,94 | 0,568 | |
| Education ≥ 13 anni – N (%) | 12 (30) | 9 (26,5) | 14 (36,8) | | 0,94 | 0,642 | |
| Currently unemployed – N (%) | 16 (42,1) | 11 (33,3) | 16 (42,1) | | 5,70 | 0,222 | |
| No friends to rely on – N (%) | 17 (42,5) | 17 (50) | 21 (55,3) | | 1,29 | 0,526 | |
| Uses other substances – N (%) | 22 (55) | 15 (44,1) | 5 (12,8) | | 16,05 | <0,001 | A,B> C |
| Age at onset of behavior | 21,55±4,97 | 19,71±4,76 | 25,00±11,09 | 4,56 | | 0,013 | A = B; B < C [#] |
| Age of continued use | 23,82±6,04 | 25,38±7,34 | 31,27±10,59 | 8,57 | | <0,001 | A, B < C [#] |
| Age of first treatment | 28,56±6,57 | 29,68±6,65 | 38,97±10,27 | 17,81 | | <0,001 | A, B < C [#] |

Note:

[#] = Tamhane post-hoc test**Substance Abuse, Depression, Hopelessness, and Suicidal Spectrum**

The differences among groups are detailed in **Table 3**.

The three groups do not differ in the total scores on the GMDS, BHS, and SHSS. However, significant differences were found in death wishes in the last 12 months and suicidal plans in the last month. Patients dependent on heroin, compared to those dependent on cocaine, are more likely to report death wishes in the last 12 months (57.5% vs. 46.2%; $\chi^2_1 = 7.21$; $p = 0.007$) and suicidal plans (17.5% vs. 0%; $\chi^2_1 = 6.57$; $p = 0.01$). No difference was observed between patients with heroin dependence and alcoholic patients, and between alcoholic patients and those dependent on heroin.

Table 3

| | Heroin (40) Mean (SD) | Cocaine (34) Mean (SD) | Alcohol (39) Mean (SD) | Test | | <i>p</i> | post hoc test |
|--|--------------------------------|------------------------------|------------------------------|------|----------|--------------|---------------|
| | | | | F | χ^2 | | |
| Total GMDS | 12,45±9,56 | 10,09±6,24 | 11,67±7,62 | 0,81 | | 0,447 | |
| Total BHS | 9,15±4,05 | 6,97±4,48 | 8,82±4,95 | 2,43 | | 0,093 | |
| Total SHSS | 3,68±3,10 | 2,41±2,35 | 3,03±2,40 | 2,09 | | 0,129 | |
| Death wishes last 12 months - N (%) | 23 (57,5) | 9 (26,5) | 18 (46,2) | | 7,26 | 0,027 | A > B |
| Suicidal ideation last 12 months - N (%) | 12 (30) | 4 (11,8) | 8 (20,5) | | 3,67 | 0,159 | |
| Suicidal plans last 12 months - N (%) | 17 (17,5) | 0 (0) | 4 (10,3) | | 6,42 | 0,040 | A > B |
| Suicide attempt last 12 months - N (%) | 2 (5) | 1 (2,9) | 1 (2,6) | | 0,37 | 0,830 | |
| Death wishes lifetime - N (%) | 30 (75) | 18 (52,9) | 24 (61,5) | | 3,99 | 0,136 | |
| Suicidal ideation lifetime - N (%) | 20 (50) | 14 (41,2) | 16 (41) | | 0,83 | 0,660 | |
| Suicidal plans lifetime - N (%) | 8 (20) | 10 (29,4) | 8 (20,5) | | 1,13 | 0,569 | |
| Suicide attempt lifetime - N (%) | 6 (15) | 5 (14,7) | 4 (10,3) | | 0,47 | 0,790 | |



Substance Abuse, Temperaments, and Childhood Trauma

The differences between groups are detailed in **Table 4**.

No significant difference was observed among the three groups regarding both temperamental aspects and different forms of childhood trauma. A trend towards significance was observed for depressive temperament, with patients with heroin and alcohol dependence reporting higher average scores than those with cocaine dependence.

Table 4.

| | Heroin (40) Mean (SD) | Cocaine (34) Mean (SD) | Alcohol (39) Mean (SD) | Test F | p | post hoc test |
|-------------------|---------------------------------|----------------------------------|----------------------------------|-------------------------|----------|----------------------|
| TEMPS-A | | | | | | |
| Depression | 11,13±4,52 | 9,00±3,33 | 10,62±3,95 | 2,74 | 0,067 | |
| Cyclothymia | 9,48±4,31 | 9,21±4,32 | 9,82±3,61 | 0,21 | 0,812 | |
| Hyperthymia | 9,35±5,30 | 10,71±3,50 | 9,95±4,03 | 0,88 | 0,419 | |
| Irritability | 6,58±3,92 | 7,38±4,17 | 6,44±3,89 | 0,64 | 0,53 | |
| Anxiety | 13,35±6,40 | 11,47±5,42 | 12,87±5,58 | 1,01 | 0,368 | |
| CTQ | | | | | | |
| Emotional Abuse | 7,85±3,85 | 7,35±3,56 | 7,36±3,75 | 0,23 | 0,798 | |
| Physical Abuse | 10,08±5,03 | 8,56±3,94 | 8,87±4,44 | 1,19 | 0,307 | |
| Sexual Abuse | 7,45±3,82 | 7,00±3,71 | 6,77±3,05 | 0,38 | 0,69 | |
| Emotional Neglect | 13,78±5,10 | 13,71±4,90 | 13,15±4,59 | 0,19 | 0,828 | |
| Physical Neglect | 10,93±2,98 | 11,12±2,41 | 10,21±2,11 | 1,35 | 0,263 | |
| Total Trauma | 50,08±16,97 | 47,74±14,07 | 46,36±14,08 | 0,61 | 0,547 | |

Differences between substance abusers and gambling disorder patients.

Socio-demographic differences

Differences between the two groups are presented in **Table 5**.

Patients with substance dependence, compared to those with gambling disorder, are characterized by a younger mean age (42.83±10.11 vs 49.86±13.88; $t_{47,39} = -2.87$; $p = 0.006$), a younger mean age at the onset of problematic behavior (22.14±7.78 vs 38.83±13.62; $t_{47,39} = -6.91$; $p < 0.001$), a younger mean age when the behavior becomes continuous (26.81±8.76 vs 42.29±13.13; $t_{47,39} = -6.53$; $p < 0.001$), and a younger mean age at the first treatment-seeking (32.30±9.20 vs 48.75±11.46; $t_{147} = -7.42$; $p < 0.001$). No differences were observed for other socio-demographic variables.

Table 5

| | Substance Dependence (113) Mean (SD) | Gambling Disorder (36) Mean (SD) | Test | p |
|--|--|--|---------------------|------------------|
| Age | 42,83±10,11 | 49,86±13,88 | $t_{47,39} = -2,87$ | 0,006 |
| Males - N (%) | 61 (54) | 19 (52,8) | $\chi^2_1 = 0,02$ | 0,900 |
| Married or in a stable relationship – N (%) | 43 (38,4) | 17 (47,2) | $\chi^2_1 = 1,09$ | 0,58 |
| Education ≥ 13 anni – N (%) | 35 (31,3) | 12 (34,3) | $\chi^2_1 = 0,11$ | 0,737 |
| Currently not employed – N (%) | 67 (61,5) | 23 (65,7) | $\chi^2_1 = 0,02$ | 0,652 |
| No friends to rely on – N (%) | 55 (49,1) | 17 (47,2) | $\chi^2_1 = 0,04$ | 0,844 |
| Use of other substances – N (%) | 42 (37,2) | 8 (22,2) | $\chi^2_1 = 2,74$ | 0,10 |
| Age at onset of behavior | 22,14±7,78 | 38,83±13,62 | $t_{47,39} = -6,91$ | <0,001 |
| Age of continuous use | 26,81±8,76 | 42,29±13,13 | $t_{47,39} = -6,53$ | <0,001 |
| Age at first treatment | 32,30±9,20 | 48,75±11,46 | $t_{147} = -7,42$ | <0,001 |



Substance Dependence, Gambling Disorder, Depression, Hopelessness, and Suicidal Spectrum

Differences between the two groups are presented in **Table 6**.

No significant differences were observed between patients with substance dependence and those with pathological gambling concerning total scores for depression and hopelessness. Similarly, no differences were revealed for any aspect of the suicidal spectrum.

Table 6

| | Substance Dependence (113) Mean (SD) | Gambling Disorder (36) Mean (SD) | Test | p |
|---|---|-------------------------------------|------------------------------------|-------|
| Total GMDS | 11,47±10,36 | 10,36±7,26 | t ₁₄₇ = 0,74 | 0,462 |
| Total BHS | 8,38±4,57 | 8,64±4,88 | t ₁₄₇ = -0,29 | 0,77 |
| Total SHSS | 3,07±2,68 | 2,33±3,03 | t ₁₄₇ = 1,39 | 0,17 |
| Wishes for death in the last 12 months - N (%) | 50 (44,2) | 11 (30,6) | χ ² ₁ = 2,12 | 0,146 |
| Suicidal ideation in the last 12 months - N (%) | 24 (21,2) | 5 (13,9) | χ ² ₁ = 0,94 | 0,332 |
| Suicidal plans in the last 12 months - N (%) | 11 (9,7) | 4 (11,1) | χ ² ₁ = 0,06 | 0,811 |
| Suicide attempts in the last 12 months - N (%) | 4 (3,6) | 1 (2,8) | χ ² ₁ = 0,5 | 0,819 |
| Wishes for death lifetime - N (%) | 72 (63,7) | 18 (50) | χ ² ₁ = 2,15 | 0,143 |
| Lifetime suicidal ideation - N (%) | 50 (44,2) | 12 (33,3) | χ ² ₁ = 1,43 | 0,247 |
| Lifetime suicidal plans - N (%) | 26 (23) | 6 (16,7) | χ ² ₁ = 0,65 | 0,420 |
| Lifetime suicide attempts - N (%) | 15 (13,3) | 4 (11,4) | χ ² ₁ = 0,08 | 0,775 |

Substance Abuse, Gambling, Temperaments, and Childhood Trauma

The differences between groups are detailed in **Table 7**.

No significant differences were observed among the three groups regarding both temperamental aspects and different forms of childhood trauma. A trend toward significance was noted for depressive temperament, with patients with heroin and alcohol dependence reporting higher average scores compared to those with cocaine dependence.

Table 7

| | Substance Dependence (113) Mean (SD) | Gambling Disorder (36) Mean (SD) | Test | p |
|-------------------|---|-------------------------------------|--------------------------|-------|
| TEMPS-A | | | | |
| Depression | 10,31±4,06 | 9,58±3,57 | t ₁₄₇ = 0,96 | 0,338 |
| Cyclothymia | 9,51±4,06 | 9,97±4,29 | t ₁₄₇ = -0,58 | 0,561 |
| Hyperthymia | 9,96±4,39 | 10,11±5,04 | t ₁₄₇ = -0,17 | 0,867 |
| Irritability | 6,77±3,81 | 6,92±4,16 | t ₁₄₇ = -0,20 | 0,844 |
| Anxiety | 12,62±5,84 | 11,06±5,04 | t ₁₄₇ = 1,44 | 0,151 |
| CTQ | | | | |
| Emotional Abuse | 7,53±3,70 | 7,58±4,03 | t ₁₄₇ = -0,07 | 0,942 |
| Physical Abuse | 9,20±4,53 | 8,69±4,82 | t ₁₄₇ = 0,58 | 0,564 |
| Sexual Abuse | 7,08±3,52 | 6,69±3,48 | t ₁₄₇ = 0,57 | 0,567 |
| Emotional Neglect | 13,54±4,83 | 13,33±5,58 | t ₁₄₇ = 0,22 | 0,830 |
| Physical Neglect | 10,73±2,54 | 10,53±2,79 | t ₁₄₇ = 0,42 | 0,679 |
| Total Trauma | 48,09±15,11 | 46,83±15,37 | t ₁₄₇ = 0,43 | 0,666 |

Differences between Polydrug Abusers and Single Substance Abusers.

Socio-demographic differences

The differences between the two groups are reported in **Table 8**.

Patients with poly-substance abuse differ from those dependent on a single substance in having a younger average age (40.40±9.71 vs 46.27±11.76; t_{115.17} = -3.27; p = 0.003), a younger average age when the behavior becomes continuous (26.80±8.06 vs



32.50±13.19; $t_{115,17} = -3.27$; $p < 0.001$), and a younger average age when they seek the first treatment (31.59±8.75 vs 38.45±12.71; $t_{115,17} = -3.74$; $p < 0.001$).

Furthermore, these patients are more likely to be male (66% vs 45.2%; $\chi^2_1 = 5.86$; $p = 0.016$) and report more individuals they can rely on (66% vs 45.6% $\chi^2_1 = 5.60$; $p = 0.018$).

No differences were found for other socio-demographic variables.

Table 8

| | Poly-substance Abusers (50) Mean (SD) | Mono-substance Abusers (104) Mean (SD) | Test | p |
|---|--|---|----------------------|------------------|
| Age | 40,40±9,71 | 46,27±11,76 | $t_{115,17} = -3,27$ | 0,003 |
| Males - N (%) | 33 (66) | 47 (45,2) | $\chi^2_1 = 5,86$ | 0,016 |
| Married or in a stable relationship – N (%) | 19 (38,8) | 42 (40,4) | $\chi^2_1 = 0,86$ | 0,652 |
| Education ≥ 13 anni – N (%) | 11 (22) | 38 (37,3) | $\chi^2_1 = 3,57$ | 0,059 |
| Currently unemployed – N (%) | 32 (66,7) | 60 (59,4) | $\chi^2_1 = 0,73$ | 0,394 |
| No friend to rely on – N (%) | 34 (17) | 56 (54,4) | $\chi^2_1 = 5,60$ | 0,018 |
| Age at onset of behavior | 23,80±7,75 | 27,24±13,90 | $t_{115,17} = -1,69$ | 0,093 |
| Age of continuous use | 26,80±8,06 | 32,50±13,19 | $t_{115,17} = -3,27$ | <0,001 |
| Age at first treatment | 31,59±8,75 | 38,45±12,71 | $t_{115,17} = -3,74$ | <0,001 |

Poly-substance Abuse, Depression, Hopelessness, and Suicidal Spectrum

Differences between the two groups are reported in **Table 9**.

Patients with poly-substance abuse, compared to those dependent on a single substance, reported significantly higher scores in GMDS (12.94±8.42 vs 10.18±7.59; $t_{152} = 2.04$; $p = 0.043$) and in SHSS (3.57±2.87 vs 2.50±2.66; $t_{152} = 2.21$; $p = 0.028$). Moreover, patients with poly-substance abuse, compared to those dependent on a single substance, have a higher probability of reporting lifetime death wishes excluding the last 12 months (74% vs 52.9%; $\chi^2_1 = 6.26$; $p = 0.012$) and lifetime suicidal ideation excluding the last 12 months (56% vs 33.7%; $\chi^2_1 = 6.98$; $p = 0.008$).

Table 9

| | Poly-substance Abusers (50) Mean (SD) | Mono-substance Abusers (104) Mean (SD) | Test | p |
|---|--|---|-------------------|--------------|
| total GMDS | 12,94±8,42 | 10,18±7,59 | $t_{152} = 2,04$ | 0,043 |
| total BHS | 8,28±4,54 | 8,52±4,68 | $t_{152} = -0,30$ | 0,765 |
| total SHSS | 3,57±2,87 | 2,50±2,66 | $t_{152} = 2,21$ | 0,028 |
| Wishes for death in the last 12 months - N (%) | 23 (46) | 39 (37,5) | $\chi^2_1 = 1,01$ | 0,314 |
| Suicidal ideation in the last 12 months - N (%) | 11 (22) | 18 (17,3) | $\chi^2_1 = 0,49$ | 0,846 |
| Suicidal plans in the last 12 months - N (%) | 6 (12) | 9 (8,7) | $\chi^2_1 = 0,43$ | 0,512 |
| Suicide attempts in the last 12 months - N (%) | 1 (2) | 4 (3,9) | $\chi^2_1 = 0,5$ | 0,819 |
| Wishes for death lifetime - N (%) | 37 (74) | 55 (52,9) | $\chi^2_1 = 6,26$ | 0,012 |
| Lifetime suicidal ideation - N (%) | 28 (56) | 35 (33,7) | $\chi^2_1 = 6,98$ | 0,008 |
| Lifetime suicidal plans - N (%) | 13 (26) | 20 (19,2) | $\chi^2_1 = 0,92$ | 0,338 |
| Lifetime suicide attempts - N (%) | 9 (18,4) | 10 (9,6) | $\chi^2_1 = 2,35$ | 0,126 |



Poly-substance Abuse, Temperaments, and Childhood Trauma

Group differences are detailed in *Table 10*.

Concerning temperamental aspects, patients with poly-substance abuse, compared to those dependent on a single substance, reported significantly higher scores in the subscales of depression (11.04±4.03 vs 9.66±3.78; $t_{152} = 2.07$; $p = 0.040$), cyclothymia (10.86±3.92 vs 8.88±4.08; $t_{152} = 2.85$; $p = 0.005$), and anxiety (14.28±5.07 vs 11.24±5.76; $t_{152} = 3.18$; $p = 0.002$). Regarding childhood trauma, patients with poly-substance abuse, furthermore, compared to those dependent on a single substance, reported significantly higher scores in the subscale of sexual abuse (9.78±4.63 vs 8.02±4.08; $t_{152} = 1.25$; $p = 0.002$). A trend towards significance was also observed in the total score of the CTQ (51.24±16.58 vs 46.32±14.72; $t_{152} = 1.87$; $p = 0.064$).

Table 10

| | Poly-substance Abusers (50) Mean (SD) | Mono-substance Abusers (104) Mean (SD) | Test | p |
|-------------------|--|---|-------------------|--------------|
| TEMPS-A | | | | |
| Depression | 11,04±4,03 | 9,66±3,78 | $t_{152} = 2,07$ | 0,040 |
| Cyclothymia | 10,86±3,92 | 8,88±4,08 | $t_{152} = 2,85$ | 0,005 |
| Hyperthymia | 9,18±4,56 | 10,47±4,47 | $t_{152} = -1,67$ | 0,097 |
| Irritability | 6,82±3,54 | 6,65±4,11 | $t_{152} = 0,25$ | 0,807 |
| Anxiety | 14,28±5,07 | 11,24±5,76 | $t_{152} = 3,18$ | 0,002 |
| CTQ | | | | |
| Emotional Abuse | 8,02±4,02 | 7,50±4,05 | $t_{152} = 0,75$ | 0,456 |
| Physical Abuse | 9,78±4,63 | 8,80±4,60 | $t_{152} = 1,25$ | 0,218 |
| Sexual Abuse | 8,02±4,08 | 6,47±3,03 | $t_{152} = 2,64$ | 0,009 |
| Emotional Neglect | 14,50±5,40 | 13,03±4,78 | $t_{152} = 1,71$ | 0,089 |
| Physical Neglect | 10,92±2,99 | 10,52±2,48 | $t_{152} = 0,89$ | 0,377 |
| Total Trauma | 51,24±16,58 | 46,32±14,72 | $t_{152} = 1,87$ | 0,064 |

DISCUSSIONS

In this study, given the documented similarities in the literature between "substance use disorder" and "gambling disorder," an investigation was conducted to determine if there was a higher level of suicidal ideation in a sample composed of individuals with heroin dependence, cocaine dependence, alcohol dependence, and gambling addiction.

Regarding substance use, no significant differences were found between the groups, except for suicidal thoughts in the last 12 months and suicidal plans in the last month. Specifically, patients dependent on heroin, compared to those dependent on cocaine, were more likely to report suicidal thoughts (57.5% vs. 46.2%) and suicidal plans (17.5% vs. 0%) in the last 12 months. No differences were observed between patients with heroin dependence and alcoholic patients, as well as between alcoholic patients and patients dependent on cocaine. A trend towards significance was also noted for depressive temperament, with patients dependent on heroin and alcohol reporting higher average scores than those dependent on cocaine.

Regarding the comparison between substance use disorder and gambling addiction, no significant differences were found between the two groups, both in terms of total depression and hopelessness scores. Moreover, no significant differences were observed in any aspect of the suicidal spectrum between these two groups.

A significant difference was found between the grouping of "poly-substance abusers" and those without poly-substance abuse. Poly-substance abusers, compared to individuals dependent on a single substance or behavior, were characterized by a lower average age, an earlier onset of continuous behavior, and an earlier age when seeking initial treatment. Additionally, they were more likely to be male and reported having a larger social support network (interpreted, perhaps, as a larger circle of friends with similar substance abuse issues).

Poly-substance abusers, compared to those dependent on a single substance, reported significantly higher scores on the "Gotland Scale for Assessing Male Depression" (GMDS) and the "Suicidal History Self-Rating Screening Scale" (SHSS). Furthermore, they were more likely to report lifetime suicidal thoughts, excluding the last 12 months, and lifetime suicidal ideation, excluding the last 12 months.

In terms of temperamental aspects, poly-substance abusers, compared to those dependent on a single substance, reported significantly higher scores in the subscales of depression, cyclothymia, and anxiety. Regarding childhood trauma, poly-substance



abusers, compared to those dependent on a single substance, reported significantly higher scores in the subscale of sexual abuse, with a trend towards significance in the total score of the Childhood Trauma Questionnaire (CTQ).

CONCLUSIONS

From the observations, it can be concluded that in our sample, no significant differences emerged concerning the observed dependence, whether from substances or gambling. However, a higher vulnerability and an increased risk of suicide were evident in users dependent on multiple substances or both substances and gambling (poly-substance abusers) compared to those with dependence on a single substance or gambling alone.

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