Psychiatria Danubina, 2025; Vol. 37, Suppl. 1, pp 417-420
Conference paper
Brief report

IMPULSIVITY AND PSYCHIATRIC REHABILITATION INTERVENTIONS: A STUDY ON A SAMPLE OF PATIENTS INCLUDED IN REHABILITATION PROGRAMS

Maria Vincenza Minò[1], Antonella Vacca[2], Antonella Litta[2,3], Andreana Franza[4] & Francesco Franza[5,6]

[1]Psychiatric Rehabilitation Center "Don Tonino Bello" - Assoc. M.I.T.A.G. - Onlus, Brindisi, Italy
[2]Mental Health Department, ASL Taranto, Grottaglie, Manduria (TA), Italy
[3]Department of Precision and Regenerative Medicine and Ionian Area (DiMePRe-J), University of Bari "Aldo Moro", Bari, Italy
[4]Neamente Association, Mercogliano (AV), Italy
[5]Psychiatric Rehabilitation Center "Villa dei Pini", Avellino, Italy
[6]Psychiatric Studies Centre (Cen. Stu. Psi.), Provaglio d'Iseo (BS), Italy

SUMMARY

Impulsivity is a frequent feature in patients with psychiatric disorders. Its evaluation can facilitate therapeutic interventions. In our study, we evaluated the impulsivity of 55 patients residing in psychiatric rehabilitation facilities using the BIS-11 scale. We evaluated its relationship with educational and social rehabilitation intervention programs.

Key words: *impulsivity - psychiatric rehabilitation interventions - BIS-11*

* * * * *

INTRODUCTION

Impulsivity can be described as the inability to control one's behaviours and thoughts, often leading to actions that are harmful both to others and oneself. Many authors discuss the need to differentiate impulsivity from the anxious component and anguish, considering it as a "psychic dimension of instinctuality" (Barratt & Stantford 1995). Although impulsivity can be present in any individual with or without a psychiatric diagnosis, it is often described in individuals with certain psychiatric disorders, as well as personality disorders, mania, and substance dependence (Gvion & Apter 2011). The problem of impulsivity concerns several psychiatric patients, and numerous studies have identified the presence of high rates of impulsivity in various psychiatric disorders (Minò et al. 2024; Perito et al. 2024; Franza & Solomita 2023).

Impulsivity is an important aspect of several psychiatric disorders that is supported by several underlying biological, psychological, and social factors (Hoptman 2015; Robbins et al. 2012; Stein et al. 1993).

The high comorbidity of impulsivity in some psychiatric disorders, including personality disorders, substance use disorders, and bipolar disorder, is related mainly to the association between impulsivity and the biological substrates of these disorders (Moeller et al. 2001).

One of the most widely used instruments in psychiatry for studying impulsivity is the Barratt Impulsiveness Scale-11 (BIS-11) (Patton et al. 1995). This scale identifies three factors: cognitive impulsivity, motor impulsivity and unplanned impulsivity. The latter is understood as a lack of self-control and intolerance to cognitive complexity.

In a study conducted by Corruble et al. (2003), it was highlighted that impulsivity can be considered a characteristic present in patients with major depression who are suicidal. Increased levels of impulsivity have been reported in several scientific studies among these patient groups (Dvorak et al. 2013). Greater levels of impulsivity were also detected in patients who have PTSD, especially in individuals who presented a greater severity of post-traumatic stress disorder. Young et al. 2020; Netto et al. 2016).

Other studies have highlighted the presence of high levels of impulsivity in individuals affected by bipolar disorder (Ramírez-Martín et al. 2025; Ghassemi 2024; Kulacaoglu & Izci 2022). Impulsivity is generally associated with the manic episode of bipolar disorder but may also be present in the euthymic period. Some authors have proposed impulsivity as a key factor in the various phases of BD.

Acting without inhibition and the search for immediate pleasure are the main components of impulsivity. During the manic episode, impulsivity is more associated with hypersexuality, reduced ability to evaluate and greater behavioural risk. During a depressive episode, impaired impulse control may be associated with an increased risk of suicidal behaviours (Lee et al. 2025). The reduced ability to control and regulate one's emotions may be present in patients affected by bipolar disorder, both in terms of self-harmful and other-harmful conduct (Chiu et al. 2025). A study conducted by Ramírez-Martín A et al. 2025, found a significant association between impulsivity and concurrent mood. The same study highlighted that impulsivity may be a relevant factor in mood regulation among individuals with bipolar disorder. Further research with larger and

more diverse samples is needed to clarify this relationship and evaluate its potential implications for clinical interventions.

Our study aimed to evaluate the effects of psychiatric rehabilitation on impulsivity in patients housed in rehabilitation facilities. There were two groups of patients, offenders and non-offenders, subjected to cognitive and educational psychiatric rehabilitation programs. The two groups of patients analysed are affected by different psychiatric pathologies and have voluntarily agreed to undergo these rehabilitative interventions in residential facilities. The second group, consisting of offenders, was referred for rehabilitative interventions by judicial authorities. In a subgroup of patients, a follow-up evaluation of the impulsivity was conducted six months after the initiation of rehabilitation treatment.

SUBJECTS AND METHODS

Fifty-five patients were evaluated in residential psychiatric rehabilitation centers in Southern Italy. The mean age (years) ± SD was 45.01±10.18 (females: 45.45±7.86; males: 47.77±11.41). Patients presented with various psychiatric disorders, diagnosed according to DSM-5-TR criteria: Mood disorders (n=18), Personality disorders (antisocial and borderline, n=14), Psychotic spectrum disorders (n=11), Schizophrenia (n=11), and Other disorders (n=1).

The patient sample was divided into offenders (n=19; 10.53% female, 89.34% male) and non-offenders (n=36; 50.00% female and male). All patients participated in a psychiatric rehabilitation program involving cognitive remediation and psychoeducational interventions.

For each patient, personal data, diagnosis and months used for the psychiatric rehabilitation intervention were collected. All patients were administered following rating scales:

- Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham 1962): for assessment of psychopathological assessment;
- Barratt Impulsiveness Scale (BIS-11): to measure the general level of impulsivity and its different aspects.

Personal data, diagnoses, and the duration of psychiatric rehabilitation interventions were collected for each patient. The following rating scales were administered:

- Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham, 1962): to assess psychopathological status;
- Barratt Impulsiveness Scale (BIS-11) (Patton et al. 1995): to measure general impulsivity and its facets.

Selected sample evaluation

In a group of non-offender patients (26 patients) BIS-11 was administered at baseline of the rehabilitation intervention (T0), after 6 months (T1) and after one year (T2).

The statistical data were analysed using JASP (an open-source project supported by the University of Amsterdam) and validity and reliability analysis with factor analysis (e.g. exploratory or confirmatory factor analysis). In the selected sample, JASP output displays the results of a Repeated Measures ANOVA conducted to examine differences in scores across three time points (T0, T1, T2).

RESULTS

Table 1 shows the demographic characteristics of the clinical sample analyzed. There are no statistically significant differences between the two groups analyzed (offenders vs non-offenders) in terms of age, gender, and education.

Table 2 shows the mean total scores, both overall and by gender, of the BIS-11 of patients undergoing psychiatric rehabilitation programs. Our study highlights that total BIS-11 levels are not significantly different between male offenders and non-offender males (62.35 vs. 61.83, respectively). Instead, the mean BIS-11 total score in female non-offenders was significantly higher than in female offenders (64.11 vs. 51.00, respectively).

Table 1. Demographic features of the studied samples

		Total		Offenders		No-offenders	
	Numbers	mean	±SD	mean	±SD	mean	±SD
Mean age (yrs)							
Total	55	45.02	10.18	45.11	11.10	44.97	9.83
females	20	45.45	7.86	49.01	11.31	45.06	7.73
males	35	47.77	11.41	44.65	11.10	44.89	11.80
Education (yrs)							
Total		12.18	3.31	10.68	3.11	12.97	3.16
females		12.39	2.62	15.50	3.53	12.39	2.62
males		11.88	3.58	10.11	2.62	13.56	3.62
Illness (yrs)							
Total		18.22	9.60	18.47	11.50	18.08	9.41
females		18.78	9.49	11.50	19.29	18.80	9.54
males		18.31	9.92	19.29	10.53	17.39	9.55

Table 2. BIS-11 scores in offenders and no-offenders

	Offenders			No-offenders		
	mean	±SD	%	mean	±SD	%
females	51.00	4.24	10.53	64.11	17.66	50.00
males	62.35	11.91	89.34	61.83	13.62	50.00
total	61.16	11.82	100.00	62.97	15.58	100.00

Table 3. BIS-11 scores vs psychiatric rehabilitation months

	1-6 months	7-24 months	> 24 months
Offenders			
mean	61.83	68.67	58.50
SD	15.69	13.28	8.76
No-Offenders			
mean	53.43	65.18	65.33
SD	12.07	17.05	15.20
Total			
mean	57.83	63.77	63.53
SD	14.43	16.07	13.59

These data are only indicative, given the small number of samples analysed. Notably, no significant differences are found in terms of year of education in the analyses sample.

Table 3 presents the results of the correlation between the months of psychiatric rehabilitation in residential patients and levels of impulsivity (measured by months vs BIS-11). No statistically significant changes are observed in the BIS-11/months of rehabilitation correlation. Only in the group of offenders is a significant decrease in the mean BIS-11 score observed in patients who followed a longer rehabilitation program (>24 months: 58.50, difference: -3.33).

Table 4. BIS-11 scores Repeated Measures ANOVA

Cases	Sum of Squares	df	Mean Square	F	p
Within Subjects Effects					
RM Factor 1	998.142	1	998.142	15.269	0.006
RM Factor 1 ✻ T2	2403.881	18	133.549	2.043	0.170
Residuals	457.600	7	65.371		
Between Subjects Effects					
T2	5163.481	18	286.860	0.655	0.779
Residuals	3064.000	7	437.714		

Note: Type III Sum of Squares

Table 4 shows the BIS-11 results obtained in the group of non-offender patients following psychiatric rehabilitation programs. The results obtained (Repeated Measures ANOVA) showed a statistically significant variation in the times analysed (Post Hoc Test: p. 0.012; Coefficient of variation: 0.247 level 1; Mean Difference: 8.083).

CONCLUSIONS

Impulsivity is a risk factor in psychiatric rehabilitation interventions. Evaluating the intensity of impulsivity becomes crucial in rehabilitation programs, particularly in specific patient subgroups. The most widely used impulsivity rating scale is the BIS-11, which can become a routine tool in clinical practice for patients residing in residential facilities. In our study, we found no significant differences in impulsivity levels between male offenders and male non-offenders. In women, however, non-offenders show, on average, higher BIS-11 scores than female offenders. However, these data are interpreted as indicative only due to the small sample size. In offender patients, a significant decrease in BIS-11 scores is observed in those who have followed a longer rehabilitation program (over 24 months). In non-offender patients, a statistically significant variation is found in the times analysed using repeated measures ANOVA. In conclusion, the data from our work suggest that psychiatric rehabilitation may impact on levels of impulsivity, particularly in offender patients with longer rehabilitation programs. However, the significance of the findings varies between groups and genders, and further studies with larger samples are needed to confirm these trends and clarify the clinical implications.

Acknowledgements: *None.*

Conflict of interest: *None to declare.*

Contribution of individual authors:

All authors made substantial contributions to the design of the study, literature research, data acquisition and its analysis and interpretation, manuscript writing, translation, supervision and final reading.
All authors approved the final manuscript.

References

1. *Barratt ES, Stantford JH. Impulsiveness. In: Costello CG, ed. Personality characteristics of the personality disordered. Chichester: John Wiley & Son Inc 1995: 91-119*
2. *Chiu, BY, Tseng, MM, & Liu YH. Multidimensional assessments of impulsivity in women with bulimia nervosa, bipolar disorders, and comorbidity. Journal of eating disorders, 2025; 13:115. https://doi.org/10.1186/s40337-025-01319-6*
3. *Corruble E, Benyamina A, Bayle F, Falissard B, Hardy P. Understanding impulsivity in severe depression? A psychometrical contribution. Prog Neuropsychopharmacol Biol Psychiatry 2003; 27(5):829-833. https://doi:10.1016/S0278-5846(03)00115-5*
4. *Dvorak RD, Lamis DA, Malone PS. Alcohol use, depressive symptoms, and impulsivity as risk factors for suicide proneness among college students. J Affect Disord. 2013; 149 (1-3):326-334. doi:10.1016/j.jad.2013.01.046.*
5. *Gvion Y, Apter A. Aggression, impulsivity, and suicide behavior: a review of the literature. Archives of suicide research: official journal of the International Academy for Suicide Research, 2011; 15(2), 93–112. https://doi.org/10.1080/13811118.2011.565265.*
6. *Franza F, Solomita B. Episodes of aggression and psychomotor agitation in psychiatric inpatients during the period of the Covid-19 pandemic. European Psychiatry 2023; 66(S1), S863-S863. doi:10.1192/j.eurpsy.2023.1828*
7. *Ghassemi AE. To treat suicidality and impulsivity in bipolar disorders, inclusive, effective and evidence-based psychological interventions should be developed. Evid Based Nurs. 2024; 27(3):110. Published 2024 Jun 20. doi:10.1136/ebnurs-2023-103854*
8. *Kulacaoglu F, Izci F. The Effect of Emotional Dysregulation and Impulsivity on Suicidality in Patients with Bipolar Disorder. Psychiatr Danub 2022; 34:706-714. doi:10.24869/psyd.2022.706*
9. *Hoptman M. J. (2015). Impulsivity and aggression in schizophrenia: a neural circuitry perspective with implications for treatment. CNS spectrums, 20(3), 280–286. https://doi.org/10.1017/S1092852915000206*
10. *Lee, Y, Gilbert JR, Waldman LR, Zarate CA, Jr & Ballard ED. Review: Suicide and its relationship to aggression and impulsivity. Cognitive, affective & behavioral neuroscience, 2025; 10.3758/s13415-025-01321-0. Advance online publication. https://doi.org/10.3758/s13415-025-01321-0*
11. *Minò MV, Vacca A, Litta A, Vetrano M, Perito M, Solomita B, Franza A & Franza F. The Role of Cognitive Deficits in Emotional Dysregulation: a Study on a Simple of Patients from Psychiatric Rehabilitation Communities. Psychiatr Danub 2024; 36(Suppl 2), 424–427.*
12. *Moeller FG, Barratt ES, Dougherty DM, Schmitz JM, Swann AC. Psychiatric aspects of impulsivity. Am J Psychiatry. 2001; 158(11):1783-1793. doi:10.1176/appi.ajp.158.11.1783*
13. *Netto LR, Pereira JL, Nogueira JF, et al. Impulsivity is relevant for trauma exposure and PTSD symptoms in a non-clinical population. Psychiatry Res. 2016;239:204-211. https://doi:10.1016/j.psychres.2016.03.027.*
14. *Overall JE, Gorham DR. The Brief Psychiatric Rating Scale. Psychological Reports 1962; 10(3), 799-812*
15. *Patton JH, Stanford MS, Barratt ES. Factor structure of the Barratt impulsiveness scale. Journal of clinical psychology 1995; 51(6), 768–774. https://doi.org/10.1002/10974679(199511)51:6<768::aid-jclp2270510607>3.0.co;2-1*
16. *Perito M, Minò MV, Vacca A, Franza, F. Cognitive Impairment and Emotional Dysregulation in Offenders. Psychiatr Danub 2024; 36(Suppl 2):421–423*
17. *Robbins TW, Gillan CM, Smith DG, de Wit S, Ersche KD. Neurocognitive endophenotypes of impulsivity and compulsivity: towards dimensional psychiatry. Trends in cognitive sciences 2012; 16(1), 81–91. https://doi.org/10.1016/j.tics.2011.11.009.*
18. *Ramírez-Martín A, Sirignano L, Foo JC, et al. The relationships between impulsivity and mood in bipolar disorder: An ecological momentary assessment study. PLoS One. 2025; 20(7):e0314963. Published 2025 Jul 2. doi:10.1371/journal.pone.0314963*
19. *Stein, DJ, Hollander E, Liebowitz MR. Neurobiology of impulsivity and the impulse control disorders. The Journal of neuropsychiatry and clinical neurosciences 1993; 5(1), 9–17. https://doi.org/10.1176/jnp.5.1.9.*
20. *Young DA, Neylan TC, Zhang H, O'Donovan A, Inslicht SS. Impulsivity as a multifactorial construct and its relationship to PTSD severity and threat sensitivity. Psychiatry Res. 2020; 293:113468. doi:10.1016/j.psychres.2020.113468.*

Correspondence:
Maria Vincenza Minò, MD, Psychologist and constructivist psychotherapist
Psychiatric Rehabilitation Center "Don Tonino Bello" - Assoc. M.I.T.A.G. – Onlus
Via Venezia, 1, 72 019 San Vito dei Normanni, Brindisi, Italy
E-mail: marenza.m@virgilio