

# Alice in wonderland - Assessment of a case of one-year self reported abuse of mephedrone and other Novel Psychoactive Substances

Pierluigi Simonato<sup>1,2</sup>  
 Giuseppe Borgherini<sup>2</sup>  
 Gloria Pessa<sup>2</sup>  
 Davide Mioni<sup>2</sup>  
 Laura Bulsis<sup>2</sup>  
 Fabrizio Schifano<sup>1</sup>  
 Ornella Corazza<sup>1</sup>

<sup>1</sup> School of Life and Medical Sciences, University of Hertfordshire, Hatfield, UK

<sup>2</sup> Dual Diagnosis Unit, Casa di Cura Parco dei Tigli, Padova, Italy

## Address for correspondence:

Pierluigi Simonato  
 Dual Diagnosis Unit,  
 Casa di Cura Parco dei Tigli  
 Via Monticello 1  
 35037 Teolo, Padova, Italy  
 E-mail: pierluigi.simonato@gmail.com

## Abstract

**The use of Novel Psychoactive Substances (NPS) is nowadays a global phenomenon, clinically relevant due to their uncertain and untoward psychopathological effects. Mephedrone is the most known synthetic cathinone, consumed as a stimulant and as an alternative to other illicit compounds: in Italy few cases of abuse have been described, even if this substance is well present in national soil. This report describes the assessment of a woman who arrived in our Dual Diagnosis Unit (Parco dei Tigli, Padova) for a severe dependence of “classic” drugs (cocaine and alcohol) but also revealed an intense abuse of mephedrone for an entire year, with the experimentation of several different NPS. “Alice” followed the entire program in our Unit, receiving detoxification and psychotherapy and she was also profiled with Minnesota Multiphasic Personality Inventory-2 (MMPI-2), in order to understand and describe psychopathological features in a mephedrone user.**

**KEY WORDS:** NPSs, mephedrone, synthetic cathinones, addiction, MMPI-2.

## Introduction

In the last ten years there has been an increasing number of Novel Psychoactive Substances (NPS) in the online market (1-3), misleadingly sold as ‘legal’ alternatives to illicit compounds (4). Advisory Council on the Misuse of Drugs defines these compounds as “new narcotic or psychotropic drugs” which are not scheduled under Conventions of 1961 or 1971, but which may pose a public health threat (5).

Usually NPS are consumed in a multiple intoxication scenario (6), with ethanol and other “classic” illicit drugs (cocaine, heroin, club drugs, etc.) and their identification seems to be difficult because their changing profile and the lack of proper laboratory tests (7-10).

Synthetic cathinones (11), especially mephedrone, are among the most diffuse NPS (12-15), acting as stimulants, similar in their chemical structure to amphetamines (16). In particular mephedrone in several clinical studies was correlated to severe agitation episode, psychotic events (17), depressive mood and suicidality (15,18). More recently mephedrone was clinically related to cardiovascular (19), neurological and psychiatric effects (20,21), including violence (22).

Other NPS seem to have different effects, for example Ayahuasca (23-26), Salvia divinorum (27-29) or psychedelic mushrooms are considered powerful hallucinogenic compounds and the class of synthetic cannabinoids has been related to several symptoms, including psychosis (30).

Recognition of these compounds seems to be poor and Authors (31) suggested that health service are not completely prepared because of: a) their rapidly changing profile; b) with harms poorly understood; c) no research into treatment; d) involving new population of users.

The present case report was collected in the Dual Diagnosis Unit of the Italian Clinic Parco dei Tigli, located in Padova in the North East of Italy ([www.parcotigli.it](http://www.parcotigli.it)). The Unit follows patients from all regions of Italy, offering a rehabilitation program of: 30 days for alcohol, other classic substances (cocaine, medical products) and NPSs. The program includes: 1) detoxification phase; 2) psychopharmacological and psychiatric assessment; 3) group and individual psychotherapy (32,33); 4) psychomotor rehabilitation.

This article describes a case of self-reported consumption of mephedrone at a high dosage. The pa-

tient ('Alice') was a female subject with a history of substances dependence (cocaine and alcohol), a gambling disorder and a previous diagnosis of Borderline Personality Disorder (BPD). During the hospitalization in our Unit she revealed use of synthetic cathinones and several psychoactive compounds: the case was assessed with Minnesota Multiphasic Personality Inventory-2, which is worldwide the most widely used and researched self-report measure of psychopathology and personality characteristics (34, 35). At our knowledge this was the first case report that tried to describe personality traits and psychiatric disturbances with MMPI-2 in a mephedrone user.

### Description of the case

'Alice' was a 30-year-old woman who was admitted for the first time to the Dual Diagnosis Unit (Casa di Cura Parco dei Tigli) in 2014 following a public Health Service referral with the diagnosis of Personality Borderline Disorder (BDD), stimulant use disorder (cocaine), alcohol, gambling and binge-eating disorder (36). She arrived on her own initiative to detoxify herself and change her medications.

Alice came from a problematic family background: in particular at age of 8 years her mother left the family, suffering from alcohol dependence. She completed the Liceo and then she went to university and at the time of the hospitalization she was concluding her final nursing thesis. Her contact with public mental health service was ascribable to 2009 for an eating disorder (anorexia nervosa) following a day hospital cognitive behavioral treatment for few weeks, without medications. Starting from 2012 she accessed in psychiatric ward for suicidality and depressive mood (15 days) and for an episode of psychomotor agitation (3 days). After that, in September 2013 she was followed in a Personality Unit for three months and then supported by local psychiatric outpatients service. She arrived with the following pharmacologic treatment: sertraline (200 mg/die); valproic acid (900 mg/die); quetiapine (400 mg/die); aripiprazole (10mg/die); clonazepam (40 mg/die); lorazepam (5 mg/die); clonazepam (2 mg/die) and at her arrival she confirmed also a dependence of lormetazepam. The assessment for substances was conducted through clinical interviews, collecting further anamnestic information both for 'classic' and 'novel' compounds (NPS).

At the age of 12 years she started using weekly cannabis (THC) and alcohol with a recreational purpose with her friends, then at 13 she experienced cocaine for the first time, starting a sporadic but lonely consumption. Closely related to her unstable pattern of relationships (37), Alice increased the abuse of cocaine through years, maintaining the consumption of THC and ethanol.

Starting from 18 years cocaine and cannabis abuse decreased significantly and at the age of 20 she started going to "rave parties", consuming high dosage of

club drugs every weekend: she confirmed abuse of MDMA (3,4-Methylenedioxyamphetamine) (38) and LSD (lysergic acid diethylamide) (39). The patient specified that she "tried everything available, with the aim to induce hallucinations", so much so her friends "nicknamed her *Alice*, like *Alice in wonderland*".

When Alice arrived in our Unit she was also interviewed on NPSs and for the very first time she reported an intense use of NPS, and specifically:

- Mephedrone: she obtained this synthetic cathinones on the street market, consuming it with her friends for an entire year (2012) instead of cocaine. As modality of intake she reported nasal insufflation and smoking, 4 days per week, with a progressively higher dosage (from 0,5 grams and to 4 grams). She used mephedrone because it was: a) 'easily available'; b) very 'cheap'; c) 'powerful stimulant effect, better and different than cocaine'. She reported in particular many 'bad tips', especially during the 24 hours comedown, with strong low mood and suicidal thoughts. Described common withdrawal symptoms were sweating, headaches and insomnia.
- Other synthetic cathinones: she reported sporadic use of several substances of this family; she only remembered the name of MDPV (Methylenedioxypropylvalerone), sold in form of crystal "bath salts" (40,41).
- Ayahuasca: she reported the ingestion of this plant brew (26) only one time, describing a typical delusional parasitosis (Ekbom's syndrome).
- Psychedelic mushrooms (magic mushrooms): ingested 3-4 times; she reported the classic psychedelic effect due to contained tryptamines (psilocybin and psilocin) (42).
- Synthetic cannabis ('Spice drugs'): she smoked compounds belonging to this wide group (43) 4 times, describing effects 'similar' to THC but more 'dissociative' and also with visual hallucinogenic effects (30).
- She was not able to specifically identify ingested chemical compounds.
- Salvia divinorum: she consumed this ethno - drug (44-46) 2 times, experimenting brief visual hallucinogenic effects and uncontrolled laugh.

### Assessment, intervention and treatment

At the arrival the patient was interviewed with SCID I and II, confirming the diagnosis of Personality Borderline Disorder (BPD), fulfilling DSM-IV criteria for cocaine and alcohol dependence [corresponding to cocaine and alcohol use disorder in DSM-V (47)], and also pathological gambling, binge-eating disorder and a severe lormetazepam dependence (48).

According with collected additional information after the recovery she received also the diagnosis of stimulants (NPS) abuse according with DSM-IV (stimulant use disorder in DSM-V).

Standard blood panel and ECG were normal, with valproic acid in therapeutic range (56.9 ug/ml), while at the arrival toxicological urine sample (method KIMS COBAS) was positive to cocaine (617 ng/ml), benzodiazepines (879 ng/ml), negative to cannabis, alcohol, methadone, barbiturates, opioids. Urine have not be tested for NPS. At the end of hospitalization it was positive only to benzodiazepines (416 ng/ml), negative to cannabis, alcohol, methadone, barbiturates, opioids, cocaine.

During her recovery she participated to the detoxification program, receiving psychiatric, toxicological and personality assessment through both psychiatric and psychological interviews, following Unit entire program (30 days) and participating to the systemic and cognitive-behavioral group psychotherapy developed for addictions.

In the 26<sup>th</sup> day of recovery MMPI-2 was used in order to assess Alice with the following results (Table 1).

The final psychopharmacologic treatment was with Venlafaxine (225mg/die); Valproic Acid (900 mg/die); Quetiapine (400 mg/die) and Clonazepam (49) (1 mg/die).

## Discussion

This case report was an example of the diffusion and availability of novel psychoactive substances (NPS) in Italy as cheap alternatives to more controlled compounds used in a multiple toxicological scenario (6).

In territorial health service this patient was assessed for BPD, classic drugs dependence (including benzodiazepines) and pathological gambling disorder: in the last year her psychiatrist reported a high instability in her mood but the severe abuse of mephedrone was not previously identified. This anamnestic element seemed to suggest that the NPS phenomenon in Italy is still unfamiliar to healthcare professionals as they self reported recently (50). The case, as a matter of fact, identified consumption and experimentation of different classes of compounds, including club drugs (LSD and MDMA), synthetic cannabinoids but also Ayahuasca, Salvia divinorum and psilocybin in order to obtain hallucinogenic effects.

As Table 2 shows, chronologically the intense abuse of NPS in Alice's case preceded accesses to psychiatric ward because of severe suicidal thoughts and psychomotor agitation, with a multiple psychopharmacological treatment as result. These severe psychopathological effects have been already related in several cases series as acute issues of synthetic cathinones (51, 52), while literature seems to poor for middle and long time effects of this compound.

Concerning the pathological gambling, it was developed only in the last 6 months right after initiation of treatment with aripiprazole and according with recent recommendation and evidences (53, 54) this medication was interrupted in our Unit.

At the end of recovery the patient was also assessed with MMPI-2 in order to obtain some more specific information on patient's personality (Table 1), her propensity for hallucinogens and use of NPS in general.

Alice obtained the highest scores in Pd (Psychopath Deviate) scale (t=76), the well known APS (Addiction Potential Scale) and ASA (Addiction Acknowledgement Scale) scales, confirming the utility of these two derived scale for assessing substance abuse problems. MMPI-2 detected also high scores in Ang (Anger), Anx (Anxiety), Sc (Schizophrenia) and Dep (Depression) scales (Table 1): the meaning of this peculiar profile needs to be confirmed in future research, but it suggested a complex personality profile where different pathological issues co-exist.

Specifically the MMPI-2 profile here helped physicians of the Unit in their clinical activity in order to assess correctly the case of Alice, suggesting the most critical and psychopathological areas: psychopathic

**Table 1. Results of MMPI-2.**

Scale	t-scores (50-65)
L	54
F	65
K	<b>38</b>
Hs	57
D	62
Hy	54
Pd	<b>76</b>
MF	<b>48</b>
Pa	54
Pt	59
Sc	<b>68</b>
Ma	59
Si	52
Anx (Anxiety)	<b>69</b>
Obs (Obsessiveness)	65
Dep (Depression)	<b>67</b>
Hea (Health)	58
Biz (Bizarre mentations)	56
Ang (Anger)	<b>72</b>
Cyn (Cynicism)	51
Asp (Antisocial practices)	60
Tpa (Type A)	61
Lse (Low self-esteem)	67
Sod (Social discomfort)	47
Fam (Family problems)	<b>67</b>
Wrk (Work interference)	<b>69</b>
Trt (Negative treatment indicators)	60
APS (Addiction Potential Scale)	<b>68</b>
ASA (Addiction Acknowledgement Scale)	<b>102</b>

**Table 2. The whole Alice's history.**

Childhood	Social and family difficulties.
12 years old	First contact with substances (THC; Alcohol; Cocaine).
18-20 years old	Relationship problems, increased use of substances.
22-23 years old	Use of club drugs; searching hallucinogenic effects.
25 years old	First contact with mental health services for eating disorders.
27 years old	Intense use of mephedrone and other NPS.
27-28 years old	3 different accesses to psychiatric ward for depressive episode, psychomotor agitation and mood instability. Multiple psychopharmacologic treatment.
29 years old	Cocaine (crack), alcohol and lormetazepam dependence, pathological gambling.

deviate (55); schizophrenic (56), depressive and anger (57) scales in particular. These findings in our approach, even if preliminary, could be useful in order to develop specific guidelines to assess these patients.

Indeed this case report also underlined as multiple intoxication scenario produces difficulties in the treatment of these patients. At the arrival Alice assumed a SSRI, a mood stabilizer, three neuroleptics, two benzodiazepines, with severe dependence on lormetazepam, but she was still referring anxiety, low mood and a sense of 'instability'; at the end of the recovery the medical staff recommended a psychopharmacological medication with an SNRI (venlafaxine), a mood stabilizer (valproic acid) and an atypical antipsychotic drug (quetiapine), which is a well known drug for alcohol (58, 59) and stimulants dependence (60) and chose here to stabilize the most critical psychopathological areas.

### Conclusions and limitations

Collected results represented the first attempt to describe psychopathological profile (MMPI-2) and consequential treatment of a patient with a severe abuse of mephedrone in a context of multiple substances abuse including classic (alcohol, cocaine, lormetazepam) and new (NPS, club drugs, pathological gambling) addictions (Table 2).

The case suggested that novel compounds seemed to be easily available in Italy, sold as cheap alternatives to other substances but quite difficult to recognize in clinical activity. In the last years prevention projects as for example Psychonaut (61), ReDNet project (4, 62, 63) and the most recent High Wise and EU-Madness, have been developed to help professionals in the recognition of the phenomenon, monitoring novel trends in drug abuse, collecting information on new compounds, testing them in laboratory and disseminating technical folders to expand awareness amongst professionals. For what concerns clinical field more research needs to be carried out to define users psychopathological vulnerabilities

and develop specific guidelines for their treatment.

This clinical report was not supported with the analytical confirmation for mephedrone and other NPS, because it referred to events occurred three years before the recovery in our Unit. This report was not supported by neuroimaging.

### References

1. United Nations Office on Drugs and Crime UNODC. World Drug Report. 2014. 2014.
2. European Monitoring Centre for Drugs and Drugs Addiction EMCDDA. Online sales of New Psychoactive Substances / 'Legal Highs': summary of results from the 2011 multilingual snapshots. 2011.
3. European Monitoring Centre for Drugs and Drugs Addiction EMCDDA. European Drug Report. 2014: Trends and developments. Lisbon May 2014.
4. Corazza O, Demetrovics Z, van den Brink W, Schifano F. 'Legal highs' an inappropriate term for 'Novel Psychoactive Drugs' in drug prevention and scientific debate. *Int J Drug Policy*. 2013;24(1):82-83.
5. Advisory Council on Misuse of Drugs ACMD. Consideration of the Novel Psychoactive Substances (Legal Highs). 2011.
6. Helander A, Beck O, Hägerkvist R, Hultén P. Identification of novel psychoactive drug use in Sweden based on laboratory analysis - initial experiences from the STRIDA project. *Scandinavian Journal of Clinical & Laboratory Investigation*. 2013;73(5):400-406.
7. Tang MH, Ching CK, Tsui MS, Chu FK, Mak TW. Two cases of severe intoxication associated with analytically confirmed use of the novel psychoactive substances 25B-NBOMe and 25C-NBOMe. *Clin Toxicol (Phila)*. 2014;52(5):561-565.
8. Hohmann N, Mikus G, Czock D. Effects and risks associated with novel psychoactive substances: mislabeling and sale as bath salts, spice, and research chemicals. *Dtsch Arztebl Int*. 2014;111(9):139-147.
9. Helander A, Bäckberg M, Hultén P, Al-Saffar Y, Beck O. Detection of new psychoactive substance use among emergency room patients: Results from the Swedish STRIDA project. *Forensic Science International*. 2014;243:23-29.
10. Elie MP, Elie LE, Baron MG. Keeping pace with NPS releases: fast GC-MS screening of legal high products. *Drug Testing and Analysis*. 2013;5(5):281-290.
11. De Felice L, Glennon, RA., Negus, SS. Synthetic cathinones: Chemical phylogeny, physiology, and neuropharmacology.

- Life Sciences. 2014;97(1):20-26.
12. Archer JR, Dargan PI, Lee HM, Hudson S, Wood DM. Trend analysis of anonymised pooled urine from portable street urinals in central London identifies variation in the use of novel psychoactive substances. *Clin Toxicol (Phila)*. 2014;52(3):160-165.
  13. Schifano F, Albanese A, Fergus S, Stair JL, Deluca P, Corazza O, Davey Z, Corkery J, Siemann H, Scherbaum N, Farre' M, Torrens M, Demetrovics Z, Ghodse AH; Psychonaut Web Mapping; ReDNet Research Groups. Mephedrone (4-methylmethcathinone; 'meow meow'): chemical, pharmacological and clinical issues. *Psychopharmacology*. 2011;214(3):593-602.
  14. Wood D, Davies S, Puchnarewicz M, Button J, Archer R, Ovaska H, Ramsey J, Lee T, Holt DW, Dargan PI. Recreational Use of Mephedrone (4-Methylmethcathinone, 4-MMC) with Associated Sympathomimetic Toxicity. *J Med Toxicol*. 2010;6(3):327-330.
  15. Wood D, Davies S, Greene SL, Button J, Holt DW, Ramsey J, Dargan PI. Case series of individuals with analytically confirmed acute mephedrone toxicity. *Clinical Toxicology*. 2010;48(9):924-927.
  16. Kehr J, Ichinose F, Yoshitake S, Gojny M, Sievertsson T, Nyberg F, Yoshitake T. Mephedrone, compared to MDMA (ecstasy) and amphetamine, rapidly increases both dopamine and serotonin levels in nucleus accumbens of awake rats. *British Journal of Pharmacology*. 2011:no-no.
  17. Bajaj N, Mullen D, Wylie S. Dependence and psychosis with 4-methylmethcathinone (mephedrone) use. *BMJ Case Reports*. 2010.
  18. James D, Adams RD, Spears R, Cooper G, Lupton DJ, Thompson JP, Thomas SH. Behalf of the National Poisons Information Service. Clinical characteristics of mephedrone toxicity reported to the UK National Poisons Information Service. *Emergency Medicine Journal*. 2010.
  19. Farré M, Perez-Mañá C, de Souza E, et al. Interactions between mephedrone and alcohol in humans: Cardiovascular and subjective effects. *European Psychiatry*. 2016;33:S115.
  20. Tracy DK, Wood DM, Baumeister D. Novel psychoactive substances: types, mechanisms of action, and effects. *bmj*. 2017;356:i6848.
  21. Daveluy A, Labadie M, Titier K, et al. Poisoning by synthetic cathinones: Consumption behaviour and clinical description from 11 cases recorded by the Addictovigilance Centre of Bordeaux. *Toxicologie Analytique et Clinique*. 2017.
  22. Brookman F, Bennett TH. Fighting like M-Cats and dogs: Users' accounts of the links between mephedrone use and violence. *European Journal of Criminology*. 2017:147737 0816686121.
  23. dos Santos RG, Osório FL, Crippa JAS, Riba J, Zuardi AW, Hallak JE. Antidepressive, anxiolytic, and antiaddictive effects of ayahuasca, psilocybin and lysergic acid diethylamide (LSD): a systematic review of clinical trials published in the last 25 years. *Therapeutic Advances in Psychopharmacology*. 2016;6(3):193-213.
  24. Osborn SN. A phenomenological study of ayahuasca and its effect on anxiety, The Wright Institute. 2012.
  25. Labate BC, Jungaberle H. The internationalization of ayahuasca. Vol 16: LIT Verlag Münster. 2011.
  26. Halpern JH. Hallucinogens and dissociative agents naturally growing in the United States. *Pharmacology & Therapeutics*. 2004;102(2):131-138.
  27. Rosenbaum C, Carreiro S, Babu K. Here Today, Gone Tomorrow...and Back Again? A Review of Herbal Marijuana Alternatives (K2, Spice), Synthetic Cathinones (Bath Salts), Kratom, Salvia divinorum, Methoxetamine, and Piperazines. *J Med Toxicol*. 2012;8(1):15-32.
  28. Listos J, Merska A, Fidecka S. Pharmacological activity of salvinorin A, the major component of Salvia divinorum. *Pharmacological Reports*. 2011;63(6):1305-1309.
  29. Lange JE, Daniel J, Homer K, Reed MB, Clapp JD. Salvia divinorum: Effects and use among YouTube users. *Drug and Alcohol Dependence*. 2010;108(1-2):138-140.
  30. Papanti D, Schifano F, Botteon G, Bertossi F, Mannix J, Vidoni D, Impagnatiello M, Pascolo-Fabrizi E, Bonavigo T. "Spiceophrenia": a systematic overview of "Spice"-related psychopathological issues and a case report. *Human Psychopharmacology: Clinical and Experimental*. 2013;28(4):379-389.
  31. Bowden-Jones O. From Club to Clinic: what every clinician needs to know about NPS harms and treatment. Paper presented at: Third International Conference on Novel Psychoactive Substances. 2014; Rome.
  32. Carroll K. Recent advances in the psychotherapy of addictive disorders. *Current Psychiatry Reports*. 2005/09/01. 2005;7(5):329-336.
  33. Woody GE. Research Findings on Psychotherapy of Addictive Disorders. *The American Journal on Addictions*. 2003;12:S19-S26.
  34. Butcher JN. Minnesota multiphasic personality inventory. Wiley Online Library. 1989.
  35. Camara WN, JS.; Puente, AE. Psychological test usage: implication in professional psychology. *Professional psychology: research and practice*. 2000;31(2):141-154.
  36. APA, ed American Psychiatric Association: Diagnostic and statistical manual of mental disorders: DSM-5. Washington, D.C.2013.
  37. Lieb K, Zanarini MC, Schmahl C, Linehan MM, Bohus M. Borderline personality disorder. *Lancet*. Jul 31-Aug 6. 2004;364(9432):453-461.
  38. Green AR, Mechan AO, Elliott JM, O'Shea E, Colado MI. The pharmacology and clinical pharmacology of 3,4-methylenedioxymethamphetamine (MDMA, "ecstasy"). *Pharmacol Rev*. 2003;55(3):463-508.
  39. Sessa B. The Pharmacology of LSD: A Critical Review. *The British Journal of Psychiatry*. September 1. 2011;199(3):258-259.
  40. Winder G, Stern N, Hosanagar A. Are "Bath Salts" the next generation of stimulant abuse? *Journal of substance abuse treatment*. 2013.
  41. Olives TD, Orozco BS, Stellpflug SJ. Bath Salts: The Ivory Wave of Trouble. *Western Journal of Emergency Medicine*. 2012;13(1).
  42. Musshoff F, Madea B, Beike J. Hallucinogenic mushrooms on the German market - simple instructions for examination and identification. *Forensic science international*. 2000;113(1):389-395.
  43. Vardakou I, Pistos C, Spiliopoulou Ch. Spice drugs as a new trend: Mode of action, identification and legislation. *Toxicology Letters*. 2010;197(3):157-162.
  44. Babu K, McCurdy CR, Boyer EW. Opioid receptors and legal highs: Salvia divinorum and Kratom. *Clinical Toxicology*. 2008;46(2):146-152.
  45. Lange J, Reed MB, Croff JMK, Clapp JD. College student use of Salvia divinorum. *Drug and Alcohol Dependence*. 2008;94(1-3):263-266.
  46. Appel J, Kim-Appel, D. The Rise of a New Psychoactive Agent: Salvia divinorum. *International Journal of Mental Health and Addiction*. 2007;5(3):248-253.
  47. O'Brien C. Addiction and dependence in DSM-V. *Addiction*. 2011;106(5):866-867.
  48. Faccini M, Leone R, Pajusco B, Quaglio, G, Casari, R, Albiero, A, Donati, M, Lugoboni, F. Lormetazepam addiction: data analysis from an Italian medical unit for addiction. *Risk Management and Healthcare Policy*. 2011;5:43-48.
  49. Quaglio G, Pattaro C, Gerra G, Mathewson S, Verbanck P,

- Des Jarlais DC, Lugoboni F. High dose benzodiazepine dependence: Description of 29 patients treated with flumazenil infusion and stabilised with clonazepam. *Psychiatry Research*. 2012;198(3):457-462.
50. Simonato P, Corazza O, Santonastaso P, Corkery J, Deluca P, Davey Z, Blaszkowski U, Schifano F. Novel psychoactive substances as a novel challenge for health professionals: results from an Italian survey. *Hum Psychopharmacol*. 2013;28(4):324-331.
  51. Winstock A, Mitcheson LR, Deluca P, Davey Z, Corazza O, Schifano F. Mephedrone, new kid for the chop? *Addiction*. 2011;106(1):154-161.
  52. Wood D, Greene SL, Dargan PI. Clinical pattern of toxicity associated with the novel synthetic cathinone mephedrone. *Emergency Medicine Journal*. April 1, 2011. 2011;28(4):280-282.
  53. Smith N, Kitchenham N, Bowden-Jones H. Pathological gambling and the treatment of psychosis with aripiprazole: case reports. *The British Journal of Psychiatry*. August 1, 2011. 2011;199(2):158-159.
  54. Roxanas MG. Pathological gambling and compulsive eating associated with aripiprazole. *Australian and New Zealand Journal of Psychiatry*. 2010;44(3):291-291.
  55. Jaffe L, Archer RP. The Prediction of Drug Use Among College Students From MMPI, MCMI, and Sensation Seeking Scales. *Journal of Personality Assessment*. 1987/06/01. 1987;51(2):243-253.
  56. Archer R, Gordon, RA. MMPI and Rorschach Indices of Schizophrenic and Depressive Diagnoses Among Adolescent Inpatients. *Journal of Personality Assessment*. 1988/06/01. 1988;52(2):276-287.
  57. Schill T, Wang, S. Correlates of the MMPI-2 Anger content scale. *Psychological Reports*. 1990/12/01. 1990;67(3):800-802.
  58. Monnelly E, Ciraulo DA, Knapp C, LoCastro J, Sepulveda I. Quetiapine for Treatment of Alcohol Dependence. *Journal of Clinical Psychopharmacology*. 2004;24(5):532-535.
  59. Croissant B, Klein O, Gehrlein L, Kniest A, Hermann D, Diehl A, Mann K. Quetiapine in relapse prevention in alcoholics suffering from craving and affective symptoms: a case series. *European Psychiatry*. 2006;21(8):570-573.
  60. Brown E, Nejtek VA, Perantie DCBS, Rajan T, Nancy MA, Rush AJ. Cocaine and Amphetamine Use in Patients With Psychiatric Illness: A Randomized Trial of Typical Antipsychotic Continuation or Discontinuation. *Journal of Clinical Psychopharmacology*. 2003;23(4):384-388.
  61. Deluca P, Davey Z, Corazza O, Di Furia L, Farre M, Flesland LH, Mannonen M, Majava A, Peltoniemi T, Pasinetti M, Pezzolesi C, Scherbaum N, Siemann H, Skutle A, et al. Identifying emerging trends in recreational drug use; outcomes from the Psychonaut Web Mapping Project. *Prog Neuropsychopharmacol Biol Psychiatry*. Dic 3, 2012. 2012;39(2):221-226.
  62. Corazza O, Assi S, Trincas G, Simonato P, Corkery J, Deluca P, Davey Z, Blaszkowski U, Demetrovics Z, Moskalewicz J, Enea A, Di Melchiorre G, Mervo B, Fergus S, et al. Novel Drugs, Novel Solutions: exploring the potentials of web-assistance and multimedia approaches for the prevention of drug abuse. *Italian Journal on Addiction*. 2011;(1)(1).
  63. Corazza O, Assi S, Simonato P, Corkery J BF, Demetrovics Z, Stair J, Fergus S, Pezzolesi C, Pasinetti M, Deluca P, Drummond C, Davey Z, Blaszkowski U, Moskalewicz J, et al. Promoting innovation and excellence to face the rapid diffusion of novel psychoactive substances in the EU: the outcomes of the ReD-Net project. *Hum Psychopharmacol*. 2013;28(4):317-323.