

3rd International Conference on
NOVEL PSYCHOACTIVE SUBSTANCES
15TH - 16TH MAY, 2014. ROME, ITALY

NOVEL PSYCHOACTIVE SUBSTANCES: A COMPARISON AMONG PSYCHOSES

Rome - May 16th, 2014

Giovanni Martinotti

Università degli Studi "G. d'Annunzio", Chieti-Pescara

E-mail: giovanni.martinotti@gmail.com

NPS AND PSYCHOSIS: EPIDEMIOLOGICAL ASPECTS

1. IS THERE ANY DIFFERENCE BETWEEN SUBSTANCE-INDUCED PSYCHOSIS AND PRIMARY PSYCHOTIC ONSET?
2. NPS AND INDUCED PHENOMENA: ARE THEY ALL THE SAME?

CONCLUSIONS

INTERNET AND NEW PSYCHOACTIVE SUBSTANCES

A MARKET ON THE MOVE



New Psychoactive Substances (NPSs), also referred to as ‘designer drugs’ or ‘legal highs’, represent a broad category of unregulated psychoactive compounds, marketed as legal alternatives to well-known controlled drugs, usually sold via the Internet or in smart shops or head shops.

The 2011 EMCDDA Internet snapshot identified 314 online shops selling ‘legal highs’ that would dispatch products to at least one EU Member State.

INTERNET AND NEW PSYCHOACTIVE SUBSTANCES A MARKET ON THE MOVE

Table 2: Most frequently identified new psychoactive substances/legal highs on sale and prices in 2011

New psychoactive substance/legal high ¹	Number of shops identified		Nature	Price for 10 g (EUR)
	July	January		
Kratom	128	92	Natural	6–15
Salvia	110	72	Natural	6–12
Hallucinogenic mushrooms	72	44	Natural	10–14
MDAI (aminoindane)	61	45	Synthetic	100–110
Methoxetamine (arylcyclohexylamine)	58	14	Synthetic	145–195
6-APB (benzofuran)	49	35	Synthetic	230–260
4-MEC (cathinone)	32	11	Synthetic	120–200
MDPV (cathinone)	32	25	Synthetic	115–239
Cactus	30	17	Natural (plant)	20–40
Methiopropamine (thiophene)	28	5	Synthetic	115–130
5-IAI (aminoindane)	27	25	Synthetic	95–120
Dimethocaine (benzoate)	27	22	Synthetic	85–150
Methylone (cathinone)	26	17	Synthetic	76–130
5-APB (benzofuran)	23	6	Synthetic	250–330
AM-2201 (cannabinoid)	22	1	Synthetic	180–210
JWH-018 (cannabinoid)	20	5	Natural	200–230
JWH-250 (cannabinoid)	19	4	Natural	110–195
AMT (tryptamine)	19	13	Synthetic	230–460
MDAT (aminotetralin)	18	22	Synthetic	110–130
Mephedrone (cathinone)	18	23	Synthetic	120–200
JWH-122 (cannabinoid)	17	4	Synthetic	50–55 / 200–240

It is estimated that at least one new psychoactive substance appears on the illicit market each week.

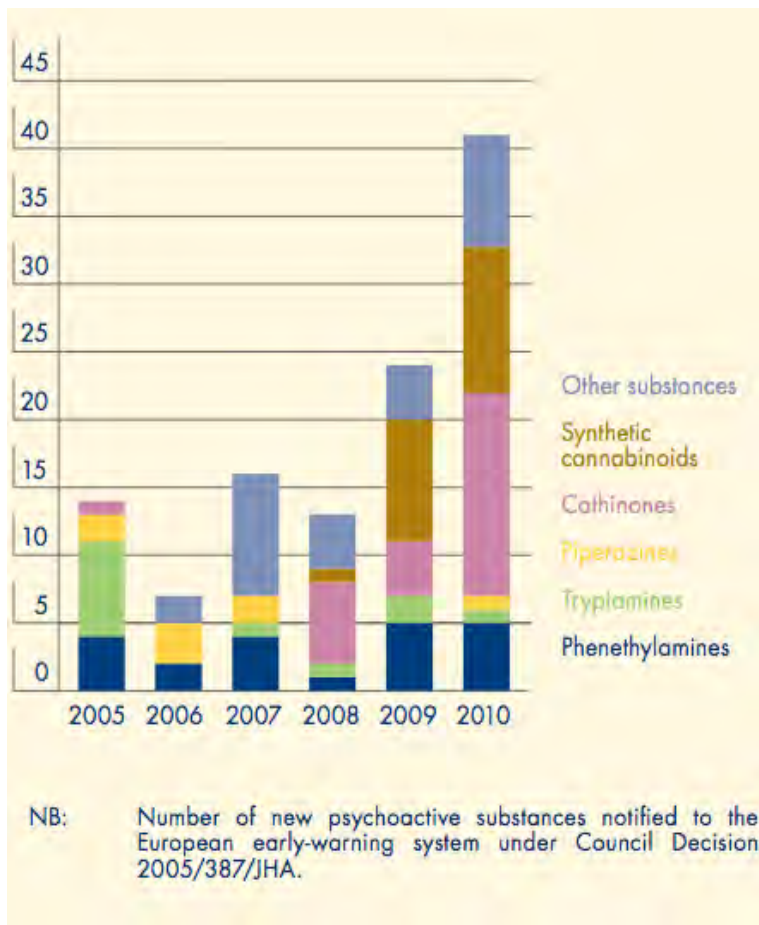
Table 1: Likely country of origin for online shops in 2011 (*)

	Number of shops identified	
	July	January
United States	197	65
United Kingdom	121	74
Netherlands	61	41
Germany	50	26
New Zealand	31	10
Czech Republic	24	21
Poland	21	9
Canada	19	5
Hungary	15	16
Russia	11	11
Romania	10	13

(*) Only countries where 10 or more shops were identified are shown.

INTERNET AND NEW PSYCHOACTIVE SUBSTANCES

A MARKET ON THE MOVE



NPSs used to belong mostly to phenethylamine and tryptamine chemical families; in the past five years, however, an increasing number of new substances from an expanding range of families has been reported.

Cathinones, synthetic cannabinoids (spice) and other substances such as benzodifuranyls, narcotic analgesics, ketamine and phencyclidine derivatives have made their appearance on the market.

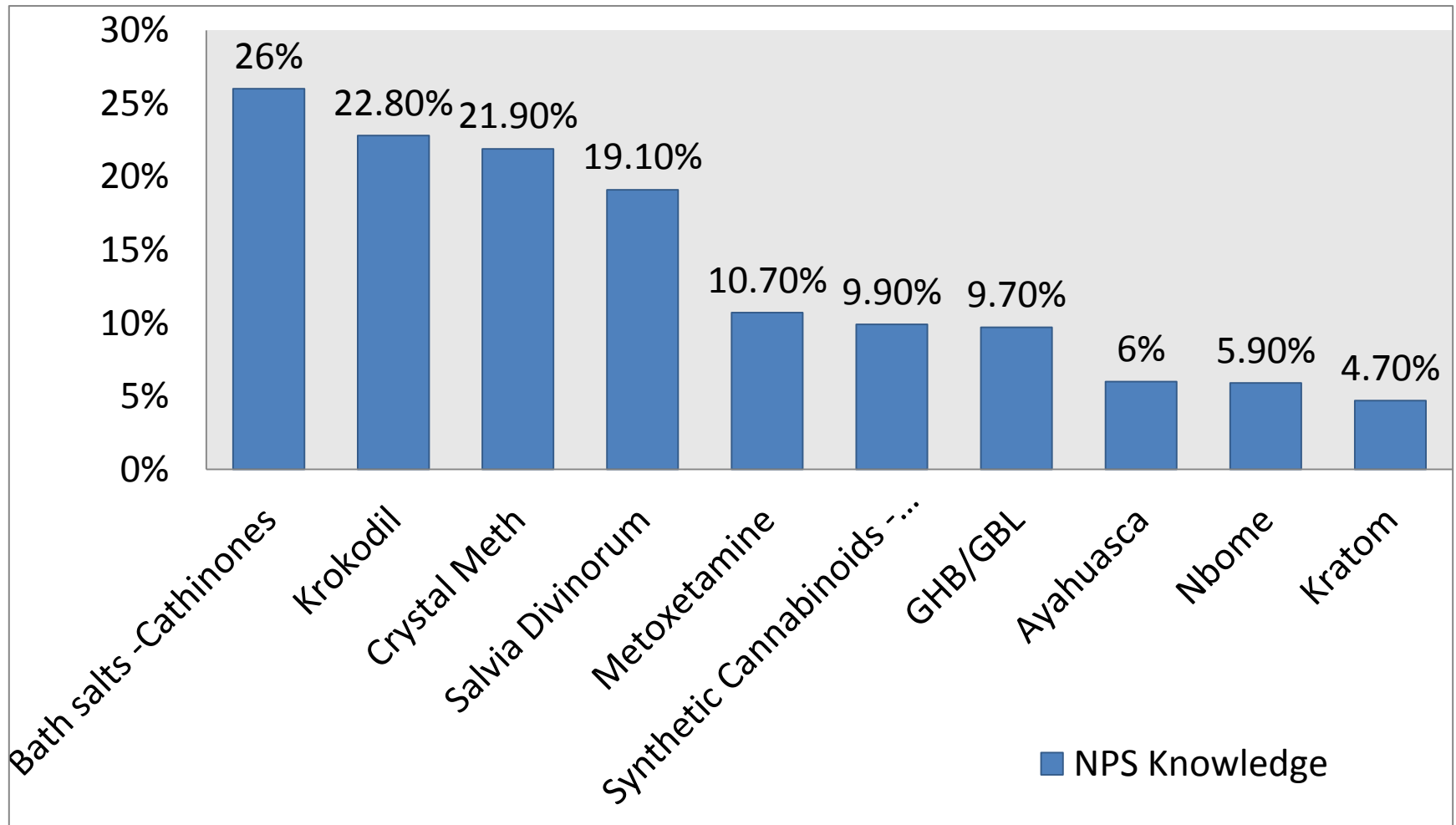
EPIDEMIOLOGY OF NPS AMONG AN ITALIAN YOUTH POPULATION



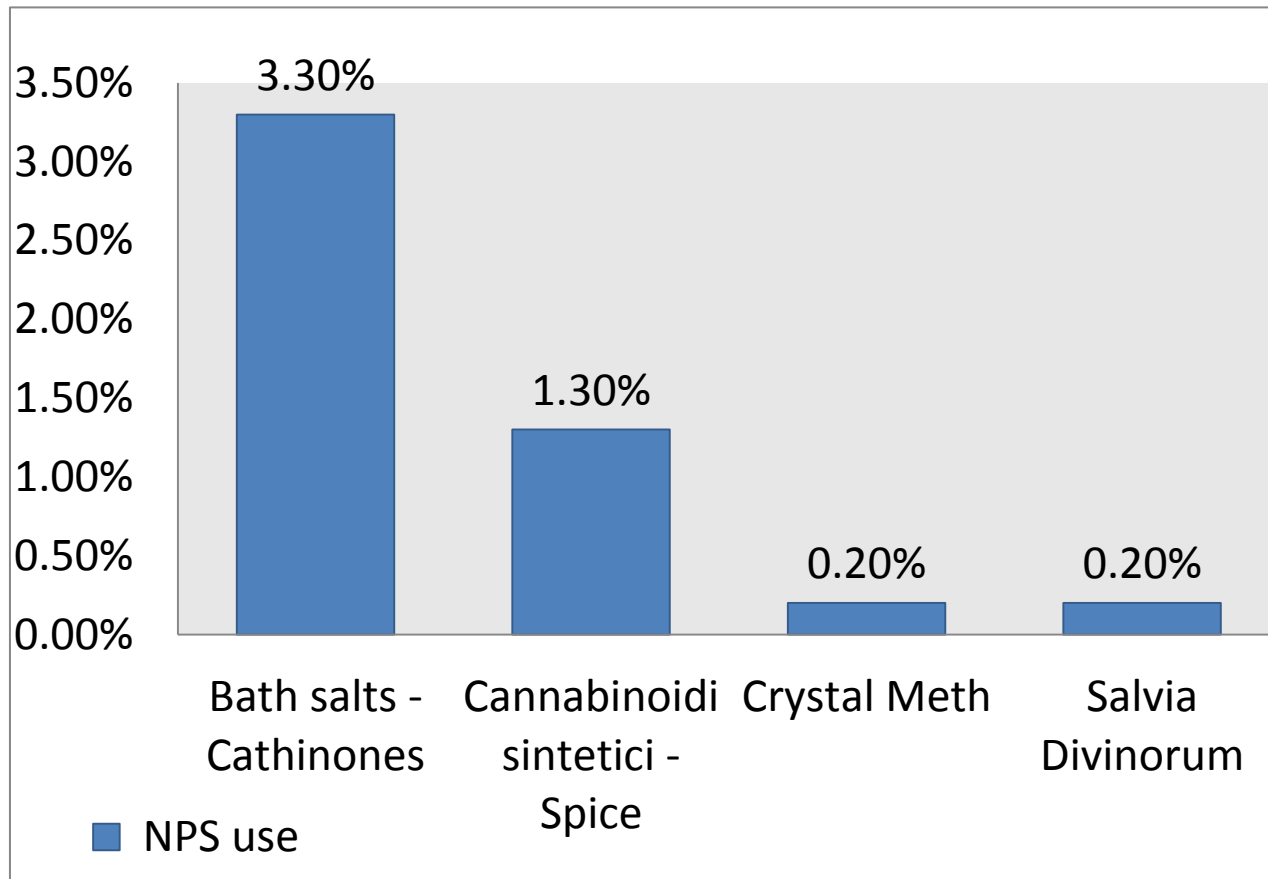
A questionnaire has been administered to a youth population (3023 subjects, 16-24 year old) randomly selected from a representative group. The test was administered in anonymous way by our team of psychologists and psychiatrists after obtaining written informed consent from subjects, according to the declaration of Helsinki. The sample has been asked to fill out a survey questioning their knowledge/use of a group of novel psychoactive substances.

Lupi et al., submitted

KNOWLEDGE OF NPS



USE OF NPS





IS THERE ANY DIFFERENCE BETWEEN
SUBSTANCE-INDUCED PSYCHOSIS AND
PRIMARY PSYCHOTIC ONSET?

Differences Between Early-Phase Primary Psychotic Disorders With Concurrent Substance Use and Substance-Induced Psychoses

Carol L. M. Caton, PhD; Robert E. Drake, MD, PhD; Deborah S. Hasin, PhD; Boanerges Dominguez, MS; Patrick E. Shrout, PhD; Sharon Samet, MS; W. Bella Schanzer, MD

400 patients recruited in New York and surroundings, characterized by:

- 1) at least one psychotic symptom;
- 2) no psychiatric history (since the 6 months before recruitment);
- 3) alcohol and/or substance abuses in the last 30 days

Differences Between Early-Phase Primary Psychotic Disorders With Concurrent Substance Use and Substance-Induced Psychoses

Carol L. M. Caton, PhD; Robert E. Drake, MD, PhD; Deborah S. Hasin, PhD; Boanerges Dominguez, MS; Patrick E. Shrout, PhD; Sharon Samet, MS; W. Bella Schanzer, MD

44% received a diagnosis of substance-induced psychosis

56% received a diagnosis of primary psychotic disorder

NB: Based on PRISM
(Psychiatric Research Interview for Substances and Mental disorders)

Differences Between Early-Phase Primary Psychotic Disorders With Concurrent Substance Use and Substance-Induced Psychoses

Carol L. M. Caton, PhD; Robert E. Drake, MD, PhD; Deborah S. Hasin, PhD; Boanerges Dominguez, MS; Patrick E. Shrout, PhD; Sharon Samet, MS; W. Bella Schanzer, MD

Table 4. Axis II, PTSD, and Substance Use Disorder Comorbidity

Comorbidity	Subject Group, %		OR (95% CI)
	Primary Disorder (n = 217)	Substance-Induced Disorder (n = 169)	
Axis II disorders			
Borderline personality disorder	8.8	14.2	1.7 (0.9-3.3)
Antisocial personality disorder	8.3	17.2	2.3 (1.2-4.3)
PTSD	6.5	11.8	1.9 (0.9-4.0)
Substance use disorders			
Alcohol abuse/dependence	34.1	60.4	2.9 (1.9-4.5)
Marijuana abuse/dependence	37.3	42.0	1.2 (0.8-1.8)
Cocaine abuse/dependence	9.2	40.8	6.8 (3.9-11.8)
Heroin abuse/dependence	0.9	10.7	12.8 (2.9-56.0)
Hallucinogen abuse/dependence	0.9	5.9	6.8 (1.5-31.3)
Polydrug dependence*	5.1	18.3	4.2 (2.0-8.7)
Any drug dependence (including alcohol)	44.7	84.6	6.8 (4.1-11.2)

Abbreviation: CI, confidence interval; OR, odds ratio; PTSD, posttraumatic stress disorder.

*Includes subjects with 3 or more drug dependence diagnoses.

Differences Between Early-Phase Primary Psychotic Disorders With Concurrent Substance Use and Substance-Induced Psychoses

Carol L. M. Caton, PhD; Robert E. Drake, MD, PhD; Deborah S. Hasin, PhD; Boanerges Dominguez, MS; Patrick E. Shrout, PhD; Sharon Samet, MS; W. Bella Schanzer, MD

Table 2. Clinical Characteristics of Substance-Induced and Primary Psychotic Disorder Groups

Finding	Baseline Findings by Diagnosis Category, Mean (SD)		P Value
	Primary Disorder (n = 217)	Substance-Induced Disorder (n = 169)	
PAS score	0.32 (0.14)	0.31 (0.14)	.34
PANSS			
Positive subscale score	18.62 (7.26)	14.30 (5.36)	<.001
Negative subscale score	14.16 (6.24)	11.67 (4.74)	<.001
General psychopathology score	33.29 (10.46)	28.44 (6.86)	<.001
SUMD			
Unawareness of symptoms	2.79 (1.52)	1.99 (1.74)	<.001
Misattributions for symptoms	2.99 (1.77)	2.36 (2.00)	<.001
Age of onset of drug use, y	17.17 (4.14)	16.83 (5.19)	.47

Abbreviations: PANSS, Positive and Negative Syndrome Scale; PAS, Premorbid Adjustment Scale; SUMD, Scale to Assess Unawareness of Mental Disorders.

Table 3. Associated Clinical Characteristics of Substance-Induced and Primary Psychotic Disorder Groups

Characteristics	Subject Groups, %		OR (95% CI)
	Primary Disorder (n = 217)	Substance-Induced Disorder (n = 169)	
Auditory hallucinations	68.7	69.8	1.1 (0.7-1.6)
Visual hallucinations	14.7	23.7	1.8 (1.1-3.0)
Violent behavior, past 12 mo	14.7	19.5	1.4 (0.8-2.4)
Suicidal ideation, past 12 mo	27.6	39.6	1.7 (1.1-2.6)
Suicide attempt, lifetime	24.0	27.8	1.2 (0.8-1.9)

Abbreviations: CI, confidence interval; OR, odds ratio.

Differences Between Early-Phase Primary Psychotic Disorders With Concurrent Substance Use and Substance-Induced Psychoses

Carol L. M. Caton, PhD; Robert E. Drake, MD, PhD; Deborah S. Hasin, PhD; Boanerges Dominguez, MS; Patrick E. Shrout, PhD; Sharon Samet, MS; W. Bella Schanzer, MD

Statistically significant clinical characteristics

- 1) Primary psychosis group: younger age, higher score in positive symptoms scales; mostly auditory hallucinations, less insight in negative symptoms and higher scores at PANSS general psychopathologic scale.
- 2) Substance-induced psychosis group: more common visual hallucinations and higher prevalence of suicidal thought during previous year. More violence. Family history of substance abuse. More insight.

Differential Diagnosis of Substance-Induced Psychosis and Schizophrenia in Patients With Substance Use Disorders

by *Richard N. Rosenthal and Christian R. Miner*

211 patients with schizophrenia or substance-induced delusional disorder/hallucinations.

Schizophrenia predictors:

- 1) formal thought disorders
- 2) bizarre delusions

Induced psychosis predictors:

- 1) imperative non-aggressive auditory hallucinations
- 2) suicidal ideation

LYSERGIC PSYCHOMA:
A FOREIGN BODY IN YOUR MIND

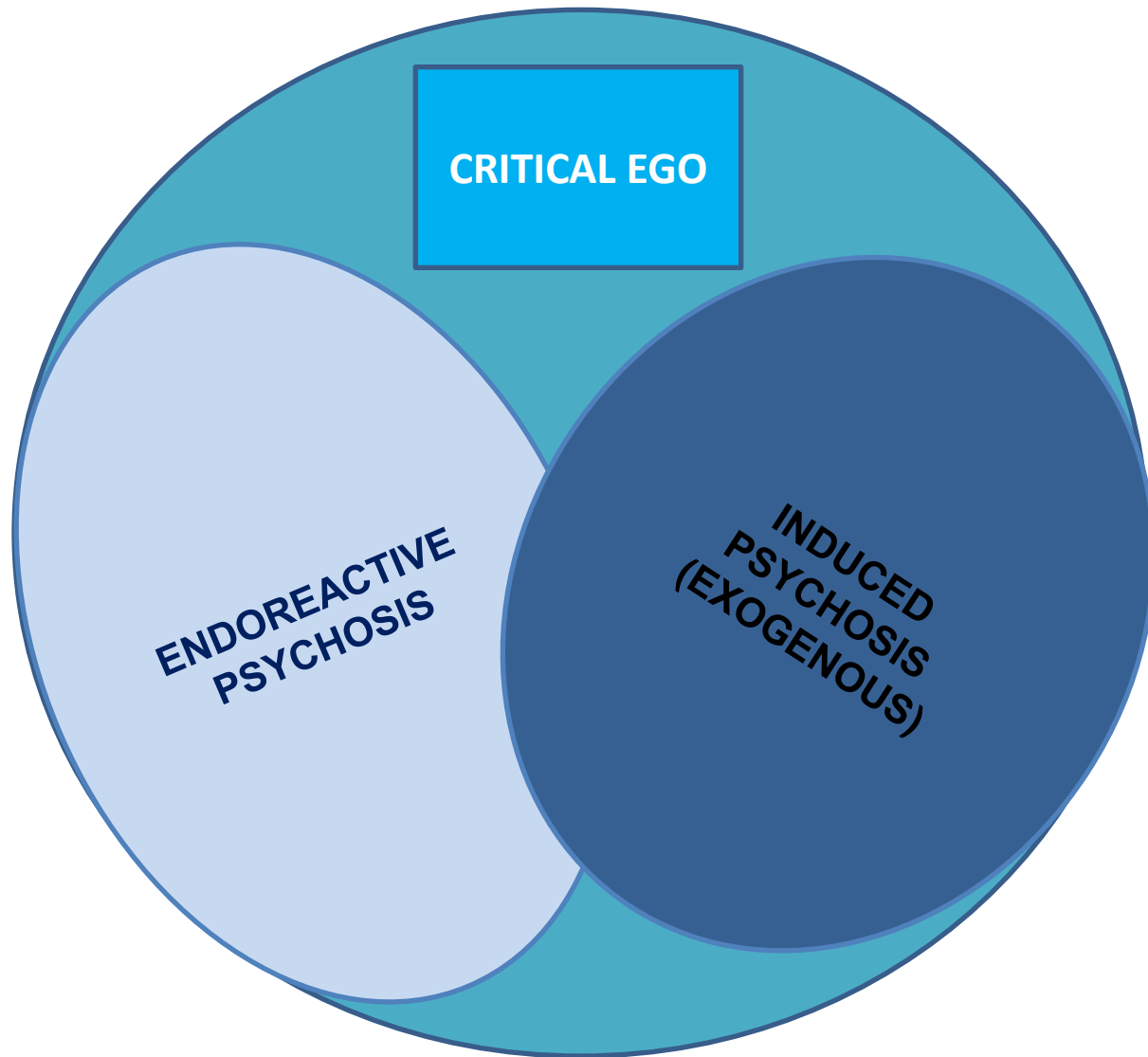
Something new from a
psychopathological point of view.
(Hellpach, Cargnello)

CRITICAL
EGO

PSYCHE

PSYCHOPATHOLOGICAL SYNDROME CHARACTERIZED BY
PERCEPTION OF EXTRANEIOUS BODY IN ONE'S OWN MIND :
THE RESIDUAL CRITICAL EGO TAKES POSITION AGAINST THE
INTOXICATED PART OF ONE'S OWN SELF (Callieri, 1968)

STRUCTURE OF THE NUCLEAR SYNDROME





NPS AND INDUCED PHENOMENA: ARE
THEY ALL THE SAME?

DIFFERENT SUBSTANCES, DIFFERENT PSYCHOSES?

- Synthetic cannabinoids-induced psychosis also known as “Spiceophrenia”
- (Meth) - Amphetaminic psychosis
- Lysergic (serotonergic) psychosis
- Dissociative psychosis



SYNTHETIC CANNABINOIDS-INDUCED PSYCHOSIS

“SPICEOPHRENIA”

SYNTHETIC CANNABINOIDS (SC)

SPICE DRUGS



SC are synthetic alternatives to THC phytocannabinoid; cannabidiol is not present.

They have a much higher potency than natural cannabinoids.

Currently there is no routine laboratory test that can confirm an SC intoxication/consumption.

“Spiceophrenia”: a systematic overview of “spice”-related psychopathological issues and a case report

Duccio Papanti^{1,2*}, Fabrizio Schifano⁷, Giulia Botteon^{1,2}, Francesca Bertossi³,
Jason Mannix⁴, Daniela Vidoni⁵, Matteo Impagnatiello², Elisabetta Pascolo-Fabrizi^{1,6}
and Tommaso Bonavigo^{3,1}

A “cannabis”-associated psychopathological syndrome occurrence was less likely with marijuana than with SC, with 2% in the marijuana and 11.2% in the SC misusers’ group, having been identified as experiencing hallucinations and delusions.

Those experiencing psychotic episodes related to SC use are also reported to present with higher/more frequent levels of **agitation** and **behavioural dyscontrol** in comparison with psychotic episodes described in marijuana misusers.



(METH) - AMPHETAMINIC PSYCHOSIS

METHAMPHETAMINE

“BREAKING BAD” PSYCHOSIS



Methamphetamine is a neurotoxin and potent psychostimulant of the phenethylamine and amphetamine classes.

Methamphetamine exists as two enantiomers: dextromethamphetamine is a stronger central nervous system (CNS) stimulant than levomethamphetamine, but both have high addictive potential.

The psychological effects of methamphetamine can include euphoria, dysphoria, changes in libido, alertness, apprehension, concentration, decreased sense of fatigue, insomnia or wakefulness, self-confidence, sociability, irritability, restlessness, grandiosity and repetitive and obsessive behaviours.

METHAMPHETAMINE

“BREAKING BAD” PSYCHOSIS

Drugs in the class of amphetamines, or substituted amphetamines, are known to induce "amphetamine psychosis" typically when chronically abused or used in high doses. In an Australian study of 309 active methamphetamine users, 18% had experienced a clinical level psychosis in the past year.

The symptoms of amphetaminic psychosis include auditory and visual hallucinations, **delusions of persecution**, and **delusions of reference** concurrent with both **clear consciousness** and prominent extreme agitation; it has been suggested that around 5–15% of users fail to make a complete recovery in the long term.



Clinical features of methamphetamine-induced paranoia and preliminary genetic association with *DBH-1021C*→*T* in a Thai treatment cohort

Rasmon Kalayasiri¹, Viroj Verachai², Joel Gelernter³, Apiwat Mutirangura⁴ & Robert T. Malison³

Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand,¹ Thanyarak Institute on Drug Abuse, Department of Medical Service, Ministry of Public Health, Pathumtani, Thailand,² Department of Psychiatry, Yale School of Medicine, New Haven, CT, USA³ and Center of Excellence in Molecular Genetics of Cancer and Human Diseases, Department of Anatomy, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand⁴

Paranoia occurs in 46–76% of experienced methamphetamine (MA) users. It is the primary symptom associated with MA psychosis and it can extend beyond states of acute intoxication, lasting from several days to months, and in some cases may even persist.

Among methamphetamine-dependent individuals, paranoia appears to occur increasingly rapidly in the course of a session of MA use. **Severity of methamphetamine dependence** and **antisocial personality disorder** predicts methamphetamine-induced paranoia. The genetic polymorphism in dopamine β -hydroxylase (higher activity genotype- CC) is associated with methamphetamine-induced paranoia and influences smoking initiation.

MDMA (3,4-METHYLENEDIOXY-N-METHYLAMPHETAMINE) IS THIS THE ECSTASY YOU WERE LOOKING FOR?



MDMA (3,4-methylenedioxy-N-methylamphetamine) is an empathogenic drug of the phenethylamine and amphetamine classes of drugs; it has become widely known as “Ecstasy”.

MDMA can induce euphoria, a sense of intimacy with others, diminished anxiety, and psychedelia.

Common psychological post-use effects include depression, anxiety, irritability, impaired attention and focusing: these have been hypothesised to last long-term.



Symptomatological Features of Patients with and without Ecstasy Use during Their First Psychotic Episode

Fabio Rugani ¹, Silvia Bacciardi ¹, Luca Rovai ¹, Matteo Pacini ²,
Angelo Giovanni Icro Maremmani ^{1,3}, Joseph Deltito ^{3,4}, Liliana Dell'Osso ¹ and
Icro Maremmani ^{1,2,3,*}

69 patients with a first acute psychotic episode:

- 23 exclusive ecstasy users (no other drugs / alcohol)
 - 46 drug free

Mean age was 21 ± 6 years.

Assessment instruments were the BPRS (Brief Psychiatric Rating Scale), the OAS (Overt Aggressiveness Scale) and the GAF (Global Assessment of Functioning).

In Ecstasy users, **blunted affect** was less severe and **hostility** more severe than in non-users.

There was evidence of **increased aggressiveness** (mostly heterodirect) and **violent behaviour** in Ecstasy Users group.

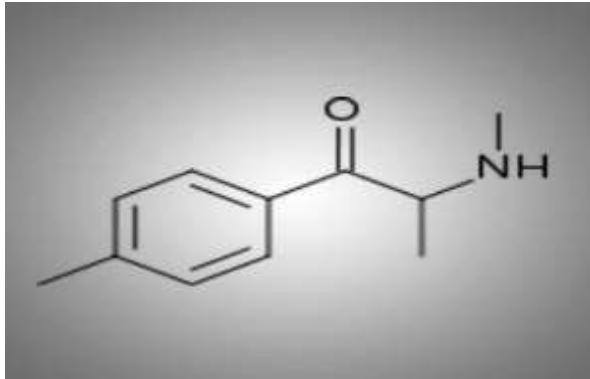
Symptomatological Features of Patients with and without Ecstasy Use during Their First Psychotic Episode

	Psychosis after Ecstasy use N = 23	Psychosis without substance abuse N = 46	F	p	Discriminant Function *
Brief Psychiatric Rating Scale					
10. Hostility	4.39 ± 1.0	3.09 ± 1.3	16.94	0.000	-0.44
16. Blunted affect	2.04 ± 1.5	3.52 ± 1.4	14.92	0.000	0.41
2. Anxiety	3.26 ± 1.2	3.98 ± 1.6	3.44	0.068	0.19
11. Suspiciousness	3.96 ± 1.3	4.52 ± 1.2	3.02	0.086	0.18
18. Disorientation	1.00 ± 0.0	1.13 ± 0.5	1.32	0.254	0.12
3. Emotional withdrawal	3.09 ± 1.8	3.45 ± 1.6	0.73	0.395	0.09
17. Excitement	2.96 ± 2.0	2.54 ± 1.7	0.76	0.384	-0.09
4. Conceptual disorganization	3.57 ± 1.4	3.85 ± 1.4	0.57	0.452	0.08
6. Tension	3.35 ± 1.7	3.61 ± 1.4	0.42	0.519	0.07
12. Hallucinatory behavior	2.61 ± 1.8	2.39 ± 1.9	0.20	0.656	-0.04
14. Uncooperativeness	4.17 ± 1.7	4.00 ± 1.4	0.19	0.662	-0.04
5. Guilt feelings	2.48 ± 1.3	2.59 ± 1.6	0.07	0.789	0.02
7. Mannerism and posturing	2.39 ± 1.5	2.48 ± 1.5	0.04	0.828	0.02
8. Grandiosity	2.30 ± 1.7	2.35 ± 1.6	0.01	0.920	0.01
13. Motor retardation	2.43 ± 1.6	2.50 ± 1.5	0.02	0.872	0.01
1. Somatic concern	2.65 ± 1.5	2.67 ± 1.5	0.00	0.957	0.00
9. Depressive Mood	2.45 ± 1.6	2.46 ± 1.3	0.00	0.954	0.00
15. Unusual thought content	4.83 ± 1.3	4.83 ± 0.9	0.00	1.000	0.00
centroids	-1.58	0.79			
	M ± sd	M ± sd	T	p	
Total BPRS	53.91 ± 8.9	55.95 ± 7.48	-0.94	0.353	

* Statistics: Wilks's lambda 0.43 chi-square = 48.29 df 18 $p < 0.001$. Reclassification power 85.5%.

MEPHEDRONE

THE M-CAT CAME BACK



Mephedrone (4-methylmethcathinone, known as Meow Meow, M-Cat, 4MMC) is a white or yellowish powder which is usually snorted, but can also be swallowed in bombs (wraps of paper) or in pill or capsule form.

1 gram of mephedrone is priced 10 to 15£ (12-17€).

Mephedrone has stimulant effects, similar to amphetamines or cocaine: euphoria, sense of wellbeing, talkativeness and confidence are reported by users.

MEPHEDRONE

THE M-CAT CAME BACK



Nose bleeding, heart palpitations, blurred vision, face and jaw muscle tension, insomnia and hallucinations are reported side effects, as also some cases of development of psychological dependence.

Since 2010, mephedrone-related fatalities have been reported in both Europe and USA.

Mephedrone has been banned in 2010 in UK; it is illegal as well in Italy, Sweden, Denmark, Finland and Germany.

CATHINONES AND SUICIDALITY

A 3-year review of new psychoactive substances in casework[☆]

Simon Elliott *, Julie Evans

ROAR Forensics Ltd, Malvern Hills Science Park, Geraldine Road, Malvern WR14 3SZ, Worcestershire, UK

This British study presents data on 203 cases (collected between January 2010 and December 2012) in which, in post-mortem or criminal casework, NPS have been detected and/or implicated.

Of particular note was the proportional high prevalence (41%) of cathinone drugs (e.g. mephedrone, MDPV, 4-MEC) in **hangings or other mechanical suicides** (not suicide by drug overdose).

This result was peculiarly high compared to other new psychoactive substances. (e.g. of all deaths which involved piperazines, only 14% were such suicides).

CATHINONES AND SUICIDALITY

A 3-year review of new psychoactive substances in casework[☆]

Simon Elliott *, Julie Evans

ROAR Forensics Ltd, Malvern Hills Science Park, Geraldine Road, Malvern WR14 3SZ, Worcestershire, UK

S. Elliott, J. Evans / Forensic Science International 243 (2014) 55–60

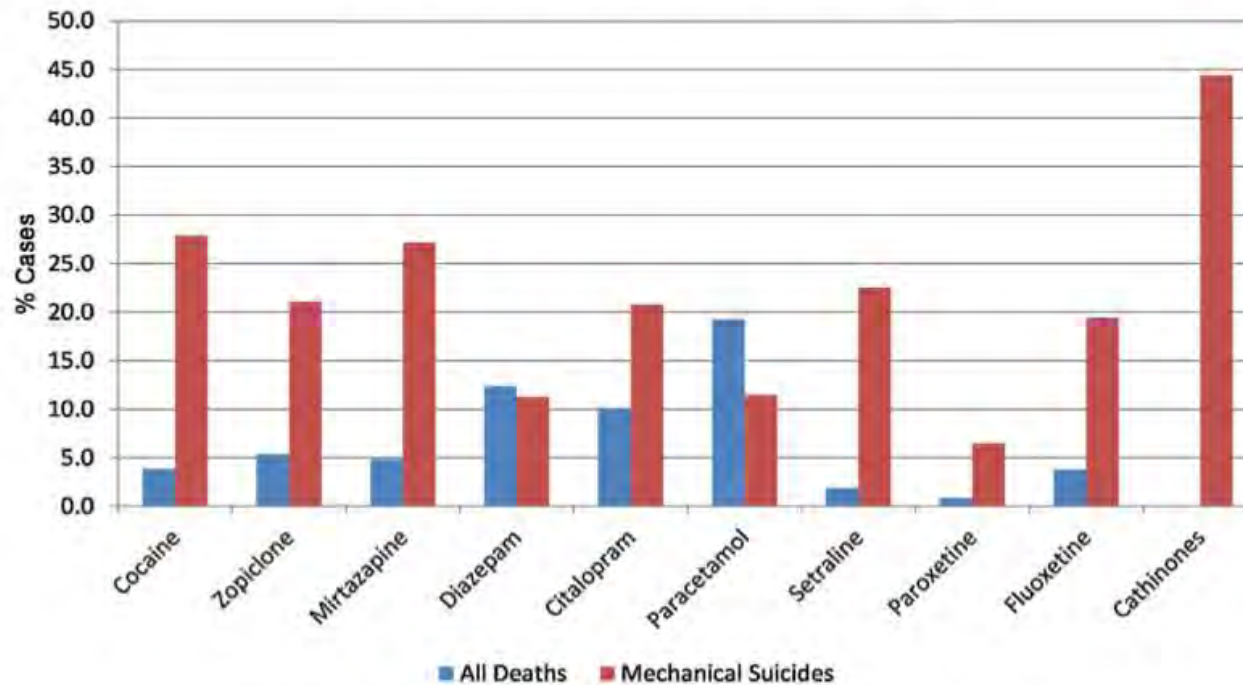


Fig. 3. Drugs detected as % in all deaths and % of those that were mechanical suicide.



LYSERGIC (SEROTONERGIC) PSYCHOSIS

SEROTONERGIC PSYCHEDELICS

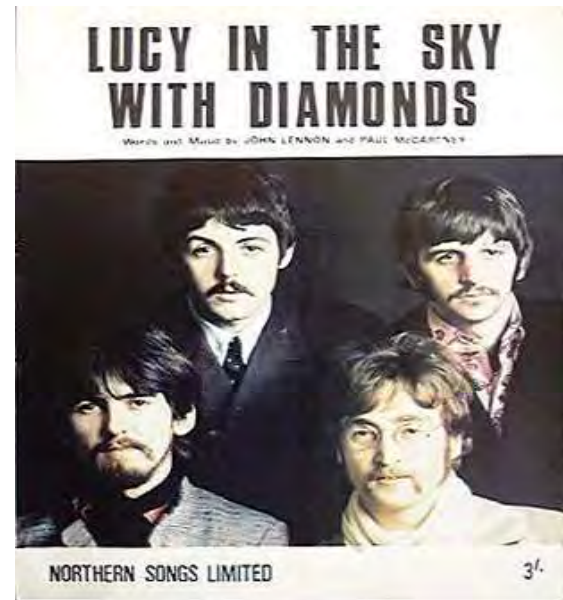
LSD

LSA (Morning Glory)

Mescaline

Psilocibina

Bufotonine



PSYLOCIBINE

“Yesterday I was in front of a Christmas tree and I saw myself hanging on the tree like one of the decorations...smaller and round-shaped, as a Christmas ball...I know it’s absurd, I am ashamed to say that, but this happened...”

Subjective experience of an Italian teenager 15 days after the assumption of an energetic drink containing a mixture of hallucinogenic mushrooms

PSYLOCIBINE

“I see geometric figures...like red lines that leave a trail...like a trace...”



VISUAL EFFECTS

SUPERIMPOSED HALLUCINATIONS AND ILLUSIONS

Color Enhancement



Higher pattern perception

VISUAL DRIFTING

SUPERIMPOSED HALLUCINATIONS AND ILLUSIONS



Tracers



Texture repetition



Scenery slicing



Visuals





KETAMINIC DISSOCIATIVE PSYCHSIS

KETAMINE

NOT-SO-SPECIAL K



Special
K
etamine

Ketamine is a dissociative anaesthetic drug, whose action is due to its being a non-competitive NMDA receptor (NMDAR) antagonist.

Ketamine is very short-acting. It takes effect within approximately 10 minutes, while its hallucinatory effects last from 60 minutes up to two hours.

At subanaesthetic doses, ketamine produces a dissociative state, characterised by a sense of detachment from one's physical body and the external world which is known as depersonalization and derealization.

At sufficiently high doses, users may experience what is called the "K-hole", a state of extreme dissociation with visual and auditory hallucinations.

Psychological effects of ketamine in healthy volunteers

Phenomenological study

[E. POMAROL-CLOTET](#), PhD, MD, [G. D. HONEY](#), PhD, [G. K. MURRAY](#), MRCPsych, [P. R. CORLETT](#), MA(Cantab), [A. R. ABSALOM](#), FRCA, MD, [M. LEE](#), FRCA, [P. J. MCKENNA](#), MRCPsych, [E. T. BULLMORE](#), MRCPsych, PhD, and [P. C. FLETCHER](#), MRCPsych, PhD

Ketamine has increasingly been used as a human pharmacological model of schizophrenia, based on the NMDA receptor hypofunction model of the illness.

In this study, ketamine (200 ng/ml) or placebo was administered by continuous infusion to 15 healthy volunteers. Symptoms were rated using the Present State Examination, the Thought, Language and Communication Scale and the Scale for Assessment of Negative Symptoms.

Ketamine induced a range of **perceptual distortions, but not hallucinations. Referential ideas** were seen in nearly half the sample. There were **mild and infrequent ratings on the thought disorder scale**. Affective flattening and alogia were seen in some volunteers, but the distinction of these phenomena from the drug's sedative effects requires further elucidation.

Capgras syndrome induced by Ketamine in a Healthy Subject

P.R. Corlett^{1,3,*}, D.C. D'Souza^{1,2,3}, and J.H. Krystal^{1,2,3}

¹Abraham Ribicoff Research Facility, Connecticut Mental Health Center, 34 Park Street, New Haven, CT 06519

²Schizophrenia Biological Research Center, VA Connecticut Healthcare System, West Haven, CT 06516 USA

³Department of Psychiatry, Yale University, School of Medicine, 34 Park Street, New Haven, CT 06519

In this case report, a 26 years old healthy graduate student carefully screened for medical, neurological, psychiatric problems participated in a 4 day study during which she was administered active or placebo oral lorazepam followed by active or placebo ketamine in a double-blind, randomized design.

Minutes after administration, she reported symptoms of Capgras Syndrome, believing that a familiar person (in this case, the examiner) had been replaced by an impostor.

Brief Psychiatric Rating Scale scores increased (19 at baseline to 52 post-bolus) with increases in paranoia, grandiosity, hallucinatory behaviour and anxiety. Total score on the Clinician Administered Dissociative States Scale increased from 0 to 30. All her symptoms resolved by the end of the test day.

CAPGRAS SYNDROME

WHEN A LOVED ONE FEELS UNFAMILIAR

Capgras syndrome is named after Joseph Capgras, a French psychiatrist who first described the disorder in 1923.

In this disorder, a person holds a delusion that a friend, spouse, parent, or other close family member has been replaced by an identical-looking impostor. Patients with Capgras delusion show intact face perception but believe that closely related persons are impostors. It has been suggested that two deficits are necessary for the delusion, an aberrant perceptual or affective experience that leads to a bizarre belief as well as an impaired ability to evaluate beliefs.



POLYDRUG ABUSE MULTIPLYING RISKS

[Clin Toxicol \(Phila\)](#). 2012 Dec;50(10):1165-8. doi: 10.3109/15563650.2012.744996. Epub 2012 Nov 20.

Simultaneous detection of multiple designer drugs in serum, urine, and CSF in a patient with prolonged psychosis.

[Thornton SL](#)¹, [Lo J](#), [Clark RF](#), [Wu AH](#), [Gerona RR](#).

An 18-year-old man presented to the emergency department (ED) with acute onset psychosis after allegedly smoking "spice." Due to agitation and psychosis refractory to multiple medications, a lumbar puncture was performed and he was admitted. He remained psychotic for almost 1 week.

MDPPP, JWH-072 and MDA were detected in initial blood, urine, and CSF samples. Cannabicyclohexanol was detected only in his serum.

JWH-072 is a cannabinoid-2 receptor (CB-2) agonist; cannabicyclohexanol is a known component of "spice" products and has been associated with agitation and psychosis. MDPPP and MDA are designer phenylethylamines likely to cause agitation and sympathomimetic symptoms.

This case suggests that the interaction of these particular substances may be associated with prolonged psychosis.

CONCLUSIONS

- NPS belong to many different chemical classes, with complex mechanisms of action, which may cause psychotic symptoms that may or may not persist in time
- Endogenous psychoses are mainly characterized by ego distortion, thought disorders, delusional perceptions, egosintonia
- Exogenous psychosis is mainly characterized by perception disorders, emotional discontrol, violent and aggressive behaviour, impulsivity, body dissociation, twilight states, egodistonia
- Using a psychopathological language, the model of the lysergic psychoma, with a still conserved Ego function fighting against an external and exogenous body inside the brain, can be proposed

CONCLUSIONS

- Synthetic cannabinoids can induce emotional dyscontrol, impulsiveness, and agitation
- Methamphetamine is associated with paranoia and ideas of reference
- MDMA can induce violent behaviours and fusional and dissociative states of empathic relation
- Mephedrone can induce mechanical suicide
- Lysergic compounds can induce perceptual distortions, bizarre visual hallucinations (also long-lasting)
- Ketamine and Methoxetamine can determine dissociation, derealization, loss of body boundaries , perceptual distortion, Capgras syndrome



THANKS FOR YOUR KIND ATTENTION!