

**ISSDP 2023 Conference**  
Wednesday, May 31st



# High school students' poly-drug use: related social aspects, and school drop-out

Carla Rossi, Francesco Fabi, Emanuela Colasante, Sabrina Molinaro, Gianpaolo Scalia Tomba

# Topics

Measuring the social and health consequences of poly-drug use;

Poly-drug use among adolescents and correlations with age, performance at school, relationships with parents and friends;

School drop-out and school indicators correlated;

Conclusions:

critical age for effective surveys (15 and not 16 as ESPAD), indicated prevention related to social aspects and substance use.

# Measuring the social and health consequences of poly-drug use

As early as 2009, the EMCDDA, as part of its studies on problematic substance use, extended the definition, modifying the concept of problematic substance use by also introducing poly-drug use as risk use: from PDU to HRDU.

However, it did not change the use of prevalence and incidence per substance as key indicators to be estimated.

As part of an EU project (2011-2013), new indicators were introduced to measure poly-drug use by combining toxicological and health scores related to the severity of the consequences of each substance with weighted averages.

The new indicators were used in several countries to compare risky substance use and later applied to data from the international ESPAD project to compare 38 countries with respect to poly-drug use and consequences and relate them to policies, specifically prevention.

The main works related to the definition and application of indicators are listed in the references.

# Scores by van Amsterdam, Nutt et al.

Harm to self score= measurement of health consequences on the consumer

Harm to others score= measurement of the Social consequences on others

van Amsterdam J, Nutt D J, Phillips L D, van den Brink W. (2015). European rating of drug harms. J. Psychopharmacol. 2015; 29(6): 655-60.

Substance	Harm to self score ( $W^{\text{self}}$ )	Harm to others score ( $W^{\text{others}}$ )
Heroin	33	18
Crack cocaine	33	14
Metamphetamine	28	1
Alcohol	24	51
Cocaine	18	11
Cannabis	17	1
Amphetamine (e.g. Speed)	16	4
Ketamine	12	2
Benzodiazepines (e.g. Valium)	11	1
GHB	10	7
Methadone	10	4
Mephedrone	10	1
Tobacco / tobacco products	8	9
Ecstasy / MDMA	8	1
Anabolic steroids	7	1
Khat	7	1
LSD (acid)	6	1
Buprenorphine	4	0
Magic mushrooms	3	0

# The poly-drug use indicators

For any user the poly-drug use indicator, measuring the global degree of physical and social harm, is obtained by adding up the score  $W$  of all the substances used in the last thirty days, or last 12 months, multiplied for the frequency of use.

Any user is then characterized by the two indicators **frequency of use score (FUS)**, obtained considering the total consumption of all the substances used in the chosen period,

and **poly-drug use (PDS) indicator, a vector of 2 components (Harm to self, Harm to others)**, the indicator is normalized by dividing by the score corresponding to the substance with the highest value of the harm to self score:

$$PDS^{self} = \sum_{i=1}^n W_i^{self} F_i / PDS_{max}^{self}$$

$$PDS^{others} = \sum_{i=1}^n W_i^{others} F_i / PDS_{max}^{others}$$

This system allows for cross country analyses or analysis of different groups of users.

## ESPAD and ESPAD®Italia data

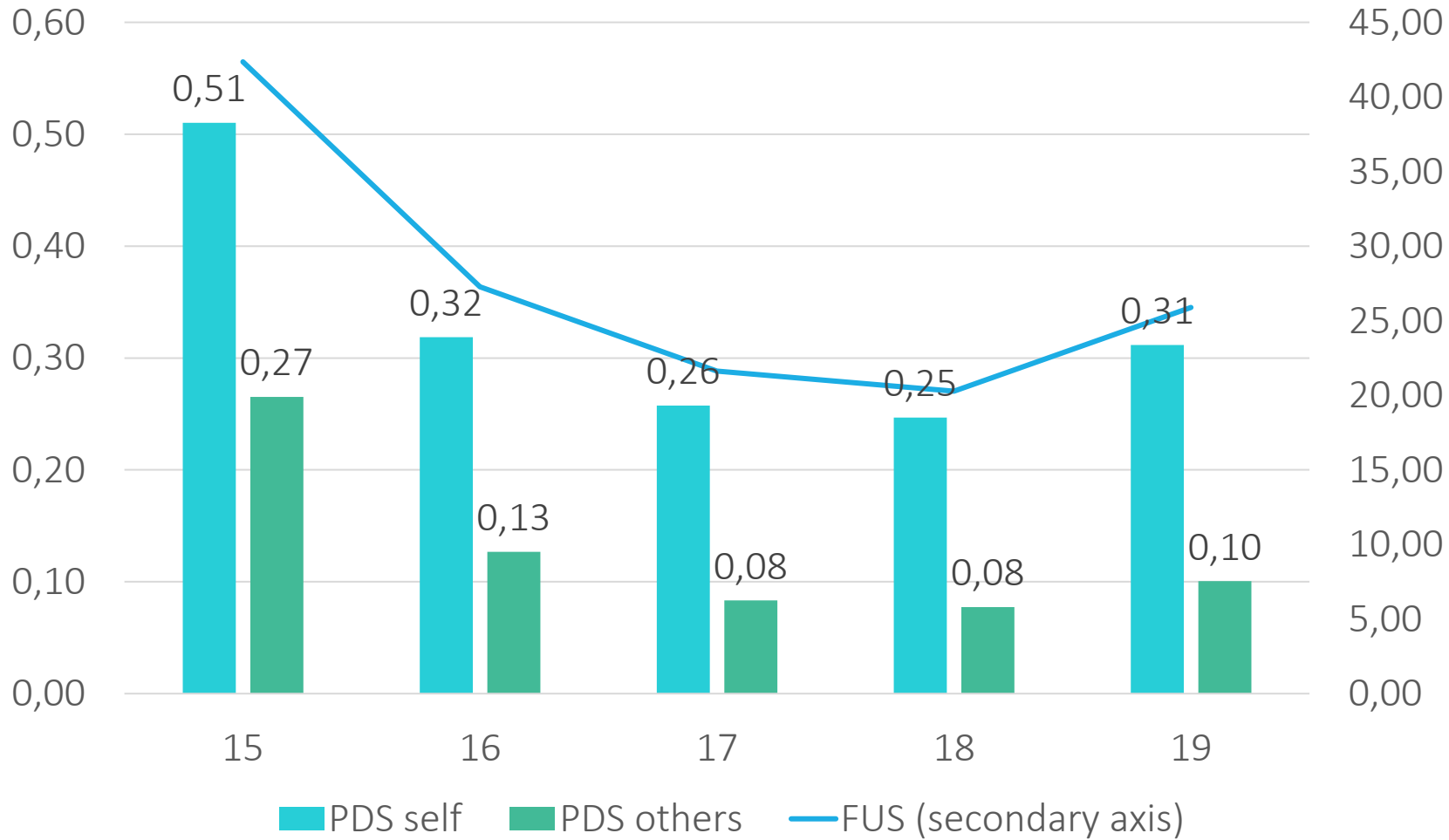
The ESPAD study (European School Survey Project on Alcohol and Other Drugs, <http://www.espad.org/>) is an international collaboration between several countries that has been producing comparable data, every four years, on substance use **among 15-16 year old students** since 1995.

The ESPAD®Italia survey (<https://www.epid.ifc.cnr.it/project/espad-it/>) covers the 15-19 age group (high school students) and is conducted annually.

The present analysis is conducted on ESPAD®Italia data for the years 2012-2016.

The behaviours of the indicators is the same in the different years, as shown for 2013.

# FUS and PDS mean values for students aged 15 to 19 years in 2013



The most intuitively unexpected result is the fact that the maximum values for both FUS and PDS are observed at the age of 15 years old, decreasing values are observed up to the age of 18 years, followed by a small increase at 19 years. The values, however, are always lower than the values corresponding to age 15.

# Males and Females in 2012

AGE	FUS	PDS <sup>self</sup>	PDS <sup>others</sup>
Males (mean and (standard deviation))			
15	39.15 (2.45)	0.48 (0.03)	0.23 (0.014)
16	29.60 (1.12)	0.35 (0.013)	0.14 (0.005)
17	32.18 (1.22)	0.38 (0.015)	0.15 (0.006)
18	29.26 (1.09)	0.36 (0.014)	0.14 (0.005)
19	35.00 (1.13)	0.42 (0.014)	0.15 (0.005)
Females(mean and (standard deviation))			
15	27.44 (5.47)	0.33 (0.067)	0.16 (0.04)
16	20.47 (4.82)	0.23 (0.053)	0.10 (0.028)
17	17.92 (4.54)	0.21 (0.053)	0.07 (0.028)
18	10.26 (1.21)	0.12 (0.014)	0.02 (0.006)
19	15.60 (3.02)	0.18 (0.036)	0.05 (0.02)



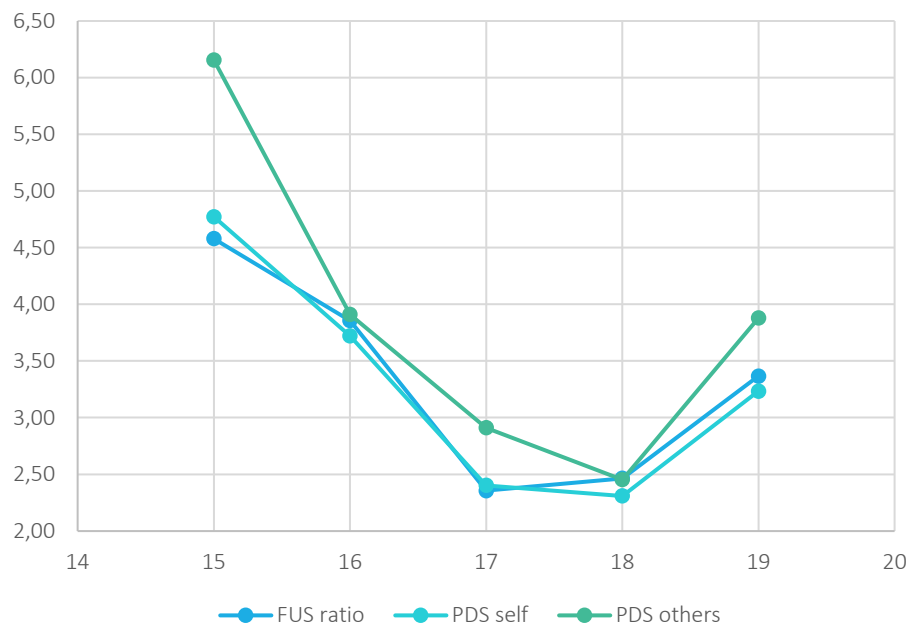
# Behavioural/attitudinal variables analysed in relation to poly-drug use scores (specific questions in the ESPAD questionnaire)

Q1) Individual has been absent from school for at least 3 days during the last 30 day period because of lack of interest. (Yes/No).

Q2) Individual has low school results.

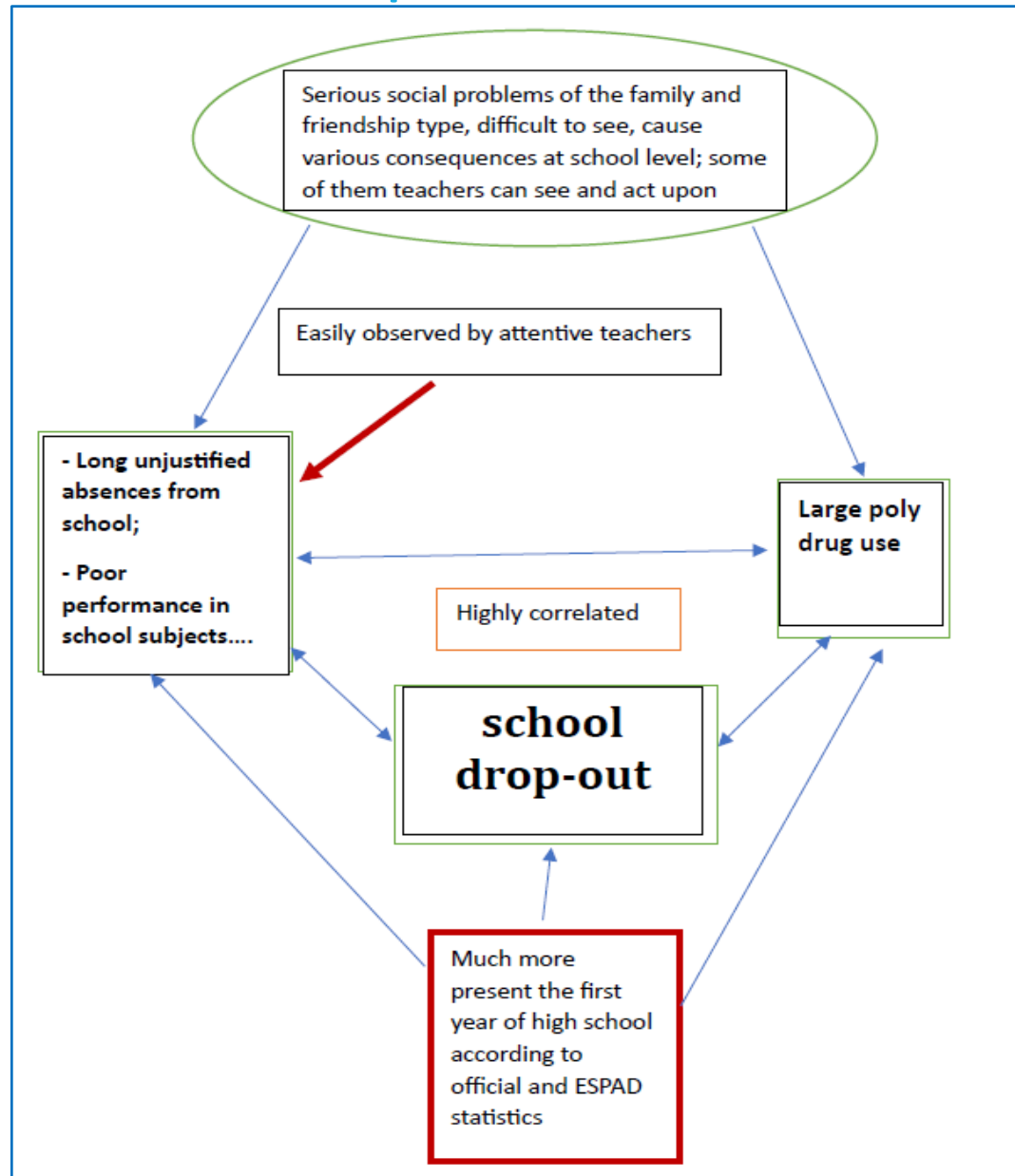
Q3) Item R10: "yes"= at least 3 negative answers to 10 "positive" propositions stating that parents care about child's behaviour at home and outside, where evenings are spent, child feels affection from parents and best friend, child receives financial support from parents

**R10 ratios of averages indicators values**



Frequency of use	Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	≥40 times	Total
School outputs very poor	55%	8%	6%	3%	5%	3%	20%	100%
poor	59%	8%	4%	4%	6%	3%	16%	100%
mediocre	64%	8%	4%	2%	5%	3%	14%	100%
sufficient	69%	8%	4%	3%	4%	2%	10%	100%
discreet	72%	8%	4%	2%	3%	2%	9%	100%
good	77%	8%	3%	1%	3%	1%	7%	100%
distinct	80%	7%	3%	1%	2%	2%	5%	100%
excellent	78%	7%	3%	1%	2%	2%	7%	100%

# School drop-out and indicators highly correlated



## Conclusions

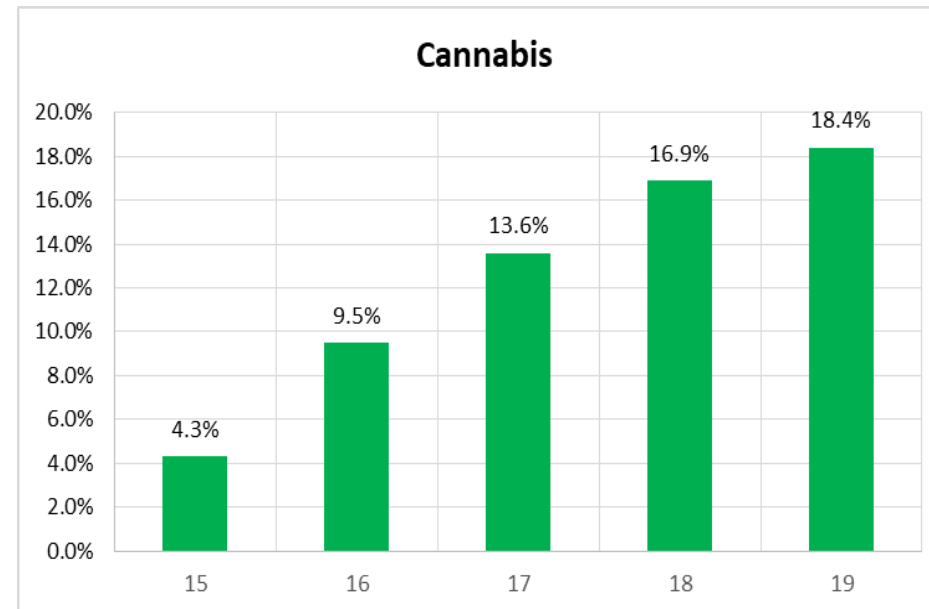
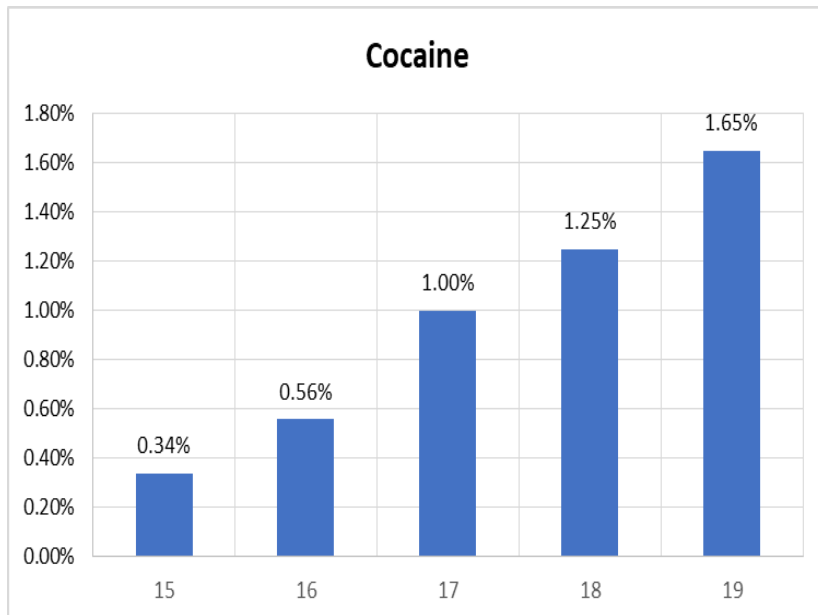
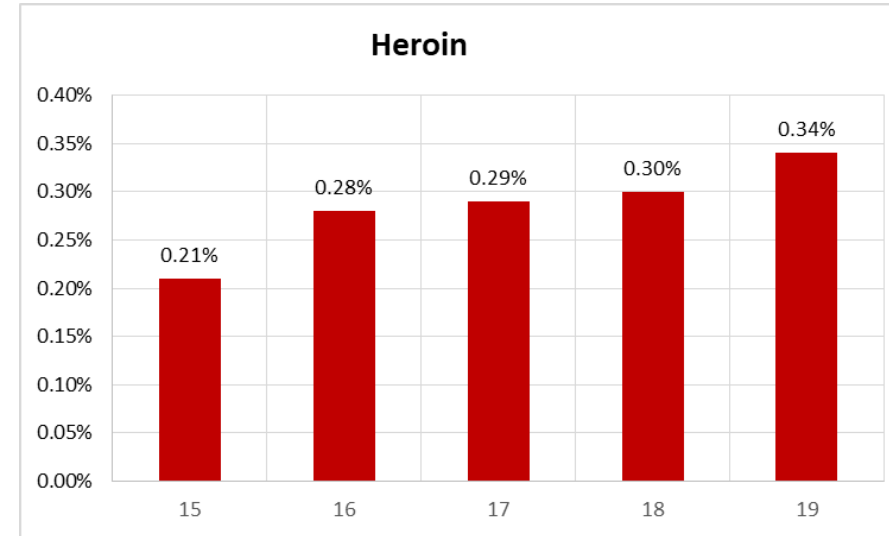
From all the properties and correlations observed between the different indicators, it can be suggested to teachers that they should investigate the discomfort of students, who, as an initial symptom, attend school infrequently and do not seem to have an interest in studying. It has been seen that they are also more prone to poly-drug use and therefore need to be 'helped' in a constructive manner.

The prevention of drop out cannot but also consider the 'indicated' prevention of 'drug use' through the involvement of families as well, since social problems, in large part in families, are quite linked to these attitudes. The main point to bear in mind is the suggestion to carry out surveys on substance use and poly-drug use by the age of 15 and specifically at the beginning of high school. If one proceeds, as in international ESPAD, by surveying 16 years old students (at least second year of high school) one gets an underestimation of the prevalence of substance use in adolescents and, if one does not use appropriate indicators of poly-drug use, one gets a bias in the statistics.

**The prevalence of individual substances do not represent the real situation and consequences.**

# Prevalence of the main substances in the last 12 months in 2012 by students at different ages (EMCDDA Fonte data, 2012 Italy)

EMCDDA is the European Monitoring Centre for Drugs and Drug Addiction, and Fonte is the data base containing all the data sent officially from the various countries.



# References: specific applications

Fabi F, Mammone A, Rossi C. New indicators of illegal drug use to Comparex drug user populations for policy evaluation. *Epidemiology, Biostatistics and Public Health*. 2014; 11-2: 8891-1/8891-7. Available from: [https://web.archive.org/web/20180424144142id\\_/https://ebph.it/article/viewFile/8891/8422](https://web.archive.org/web/20180424144142id_/https://ebph.it/article/viewFile/8891/8422)

Mammone A, Fabi F, Colasante E, Siciliano V, Molinaro S, Kraus L, Rossi C. (2014). New indicators to evaluate and to compare harmful drug use among adolescents in 38 European countries. *Nordic Studies on Alcohol and Drugs*. 2014; 31: 343-58.

Ventura E, Wagner H, Rossi C. New indicators of health among adolescent drug users and evaluation of drug policies comparing countries. *Epidemiology, Biostatistics and Public Health*. vol. 12-1, suppl.1. Available from:

[https://www.researchgate.net/publication/282795274\\_New\\_indicators\\_of\\_health\\_among\\_adolescent\\_drug\\_users\\_and\\_evaluation\\_of\\_drug\\_policies\\_comparing\\_countries](https://www.researchgate.net/publication/282795274_New_indicators_of_health_among_adolescent_drug_users_and_evaluation_of_drug_policies_comparing_countries)

Colasante E, Fabi F, Molinaro S, Rossi C, Scalia Tomba G. Updated indicators to evaluate harmful drug use, in particular poly-drug use. *Current Drug Research Reviews*. 2019; 11: 51-7. Available from: [https://www.researchgate.net/publication/327868290\\_Updated\\_Indicators\\_to\\_Evaluate\\_Harmful\\_Drug\\_Use\\_in\\_Particular\\_Poly-Drug\\_Use](https://www.researchgate.net/publication/327868290_Updated_Indicators_to_Evaluate_Harmful_Drug_Use_in_Particular_Poly-Drug_Use)

Fabi F, Rossi C. Development of new indicators for assessing the level and consequences of drug use: applications and comparisons. In C Rossi, S. Conti (Eds). *Evaluating the Impact of Laws Regulating Illicit Drugs on Health and Society*. Bentham Books, Sharajah U.A.E, 2022: pp. 99-118.



..a book that has just come out...



## Evaluating the impact of Laws Regulating Illicit Drugs on Health and Society

Editor(s) : Carla Rossi, Susanna Conti

DOI: 10.2174/97898150792411230101

eISBN: 978-981-5079-24-1, 2023

ISBN: 978-981-5079-25-8

Thank you very much for your attention