

## ORIGINAL ARTICLE

# Alter Ego. Drug and brain – Information to prevent. Compared analysis of opinions, knowledge and habits among a multicentric sample of secondary school students about drug addiction

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## Key words

Exhibition • Drug addiction • Prevention

## Summary

*Repression and control have been shown to be inadequate for drug addiction issues. Recent history, however, has proved that information is one of the most effective measures against the spread of drugs.*

*The wide range of drug circulation and the need for the spread of correct information on the effects of drugs in man, especially his brain, have led the Center for Scientific Culture Diffusion of Cassino University, to widen the scope of “Alter Ego. Drugs and the brain”, a touring educational exhibition, which opened*

*in 1994, by dedicating more attention to socially accepted drugs, such as alcohol and tobacco, and to new substances like ecstasy and similar drugs.*

*Concurrently with the Alter Ego touring exhibition, a study was undertaken to obtain information on public awareness of the dangers of psychotropic drug abuse and to assess the effectiveness of the exhibition as an instrument of scientific information about drug addiction among its visitors, during its tour of over 60 Italian towns.*

## Introduction

In Italy, the Ministry of Health conducts surveys based on information from the Ser.T. (Drug addiction social service centre) to issue official statistics on drug use/abuse.

In 2002, 79.5% of Ser.T. visitors were heroin addicts, 13.8% cannabis consumers, and 9.1% cocaine addicts while 7% were taking other kinds of narcotics [1, 2].

Ser.T. statistics focused mostly on drug addicts taking heroin by intravenous injections although drug trafficking and the spread of drug abuse have dramatically changed over the last years [3-5].

Drugs like heroin today cause great concern, particularly with regard to infectious diseases caused by intravenous drug injections. Figures on drug seizures and specialised information indicate that the situation is becoming stable.

During the last ten years, the average age of people referring to the Ser.T. has constantly increased, showing that the problem affects not only teenagers but it is also characteristic of an entire social group [5].

Since 1990, the number of people turning to the Ser.T. with problems from heroin use, has doubled [6]. Meanwhile the range of drugs has considerably increased and the needs or interests in them have actually been for cocaine, amphetamine, LSD, ecstasy or alcohol.

The wide range of drugs circulation and the need for the spread of correct information on the effects of drugs

in man, especially his brain, have prompted the Center for Scientific Culture Diffusion of Cassino University to set up the “Alter Ego. Drugs and the brain” exhibition [7].

Concurrently with the touring exhibition, a study was undertaken among secondary school students to obtain a multi-centric outline of the awareness, opinions and habits of young people in three geographical areas, North, Centre and South Italy.

## Materials and Methods

Before the “Alter Ego. Drugs and the brain” exhibition visited their town, a random cross-section of 1,404 secondary school students in the towns of Cassino, Faenza, Fossombrone, Misano, Mondragone, Ravenna and Rimini were handed out a questionnaire to be anonymously filled in for the study.

In other surveys, thanks to the reoccurrence of indirect questions, particularly on drug abuse, proving that the answers were reliable, this set of questions was considered valid.

The first part of the questionnaire prompts the students to evaluate their knowledge of the following topics: drugs and their effects on the human brain, organs mostly affected by drugs, different kinds of narcotics causing addiction and infectious diseases transmitted by intravenous drug injections.

**Tab. I.** Percentage rates of student answers considering AIDS an intravenously transmissible disease.

Town	Yes	No	Total
Faenza	46.2	53.8	100
Misano	51.9	48.1	100
Rimini	37.1	62.9	100
Ravenna	81.6	18.4	100
Fossombrone	63.3	36.7	100
Cassino	83.9	16.1	100
Mondragone	76.1	23.9	100

$\chi^2 = 195.76; p < 0.0005$

The aim of the second part of the survey is to specify the main sources of information on drug addiction and to determine the general point of view on the activity of prevention carried out by schools and the media.

The last part intends to evaluate the individual needs, to classify the types of drugs and psychotropic substances and to define the circumstances where drugs are mostly taken.

The data obtained were analysed using the “SPSS” statistics software. The “ $\chi$ ” test was applied. Since the differences were statistically relevant between the cross-sections, the figures were rounded off to  $p < 0.05$ .

## Results

The questionnaire was answered by 1,264 students between 15 and 18 years of age (106 in Faenza, 79 in Misano, 210 in Rimini, 38 in Ravenna, 60 in Fossombrone, 503 in Cassino and 268 in Mondragone).

Around half of them (56.7%) considered drugs as substances capable of altering brain activity. In terms of their effect on the human brain, the students classified as the most dangerous the following types of drugs: heroin (68.8%), cocaine (68.5%), marijuana (37.4%), LSD (34.9%) and ecstasy (31%) while 11.7% and 4.1% considered tobacco and alcohol, respectively, as being dangerous for the brain.

Eighty-eight percent (88%) or 1,118 of respondents, believe that the organ mostly affected by drugs is the

brain. Among the students 47.3%, 33.4% and 29.6% think that drugs affect the heart, lungs and liver, respectively.

Because of their addictive effect, heroin (59.9%) and cocaine (58%) are considered to be more damaging than ecstasy, which is considered to be so by 17.4% of the students.

Out of the students being questioned, 48.3% confirmed that drugs are a social problem as old as human history while 47.4% of them reckon it is a modern problem. Drugs are not a problem for 4.3% of the students whereas 50.9% have indicated a psychological factor as the reason for the beginning of drug addiction. Factors like the socio-cultural background, lack of willpower to resist the temptation of drugs and brain lesion were considered to be important by 35.7%, 34.2% and 31.1% of the respondents, respectively, while 6% of them gave no answer to questions on why the addiction starts.

Television (52.9%), schools (49.9%), parents (44.3%), newspapers (44.8%) and friends (41.3%) are the main sources of information on drugs.

Information and prevention provided by schools are regarded as positive by 50.5% while 39.7% consider it inadequate, 3.6% think it is useless and 6% did not answer.

For 46.5% of the participants, the media are operating effectively in informing and preventing drug addiction, 36.8% think it is pointless and 13% did not answer.

The object of some questions was to understand what diseases the students consider to be intravenously tran-

**Tab. II.** Percentage rates of student answers considering viral hepatitis an intravenously transmissible disease.

Town	Yes	No	Total
Faenza	12.3	87.7	100
Misano	21.5	78.5	100
Rimini	18.6	81.4	100
Ravenna	15.8	84.2	100
Fossombrone	30.0	70.0	100
Cassino	38.6	61.4	100
Mondragone	8.9	91.1	100

$\chi^2 = 103.81; p < 0.0005$

smitted. Half of them (50.1%) stated that AIDS is the most transmissible infectious disease, followed by viral hepatitis (25.4%). Regarding these last results, there are significant differences among towns (Tabs. I and II). The students from Cassino and Ravenna seem to know the most about AIDS whereas those from Faenza and Rimini know the least. In Fossombrone and Cassino, the students have received more information on viral hepatitis while this type of information is less available in Mondragone and Faenza.

Having never been on drugs is asserted by 74.4% of the participants while 20.2% of them report having tried drugs already; 5.4% did not answer this question. There are significant differences between Faenza and Fossombrone, where there is the highest percentage of students stating that they have taken drugs, and Ravenna and Cassino where there is the lowest percentage of students stating that they have taken drugs (Tab. III).

Regarding the type of substance taken, 70.8% stated that they have made use of mild drugs (cannabis), 20.4% reported the use of heavy drugs (heroin and cocaine) and 8.8% reported that they have already taken ecstasy. Statistics on the type of drugs do not provide any relevant differences among the towns studied.

While 4.7% stated that they have never taken psychotropic drugs 38.8% said that they know or mix with people taking narcotic substances.

As for the circumstances where drugs were taken, 56.6% said during a party with friends, 38.7% in a ni-

ghtclub, 21.9% alone and 2.7% with one's mate (Tab. IV).

If statistics among the cities on drug use at a party with friends do not show any significant differences, this is more evident when drugs are taken in nightclubs; this observation was confirmed more often by students in Ravenna and Rimini and less frequently by students in Misano and Fossombrone.

## Discussion

This survey on public awareness and individual needs for drugs by secondary school students shows great differences among the towns involved in the study.

In the central region of Italy, the students seem to know more about intravenously transmitted infectious diseases. Percentage-wise, more drugs are taken by northern students than by students of the same age in central and southern Italy. This pattern proves to be similar to that of US teenagers [8-10].

On the whole, within the sample studied, the substance most widely taken is cannabis while one fifth of the students stated that they have at least once been on drugs like heroin or cocaine.

This information is certainly the cause of great concern when it is compared to the percentage rate of heavy drugs users that have been reported to the police until 1997 [1].

Tab. III. Percentage rates of student answers on the use of drugs.

Town	Yes	No	Total
Faenza	31.1	68.9	100
Misano	25.3	74.7	100
Rimini	23.3	76.7	100
Ravenna	10.5	89.5	100
Fossombrone	26.7	73.3	100
Cassino	10.5	89.5	100
Mondragone	18.3	81.7	100

$\chi^2 = 43.11$ ;  $p < 0.0005$

Tab. IV. Percentage rates of student answers on the use of drugs relative to circumstances.

Town	Party with friends	Nightclub	On their own	Other
Faenza	72.7	39.4	30.3	21.2
Misano	65.0	20.0	20.0	40.0
Rimini	69.4	55.0	36.7	46.9
Ravenna	75.0	100.0	0.0	75.0
Mondragone	44.9	51.0	34.7	34.7
Fossombrone	75.0	12.5	0.0	37.5
Cassino	68.0	43.4	0.0	13.2

$\chi^2 = 6.41$ ;  $p = 0.35$ ;  $\chi^2 = 19.99$ ;  $p < 0.005$ ;  $\chi^2 = 14.7$ ;  $p = 0.025$ ;  $\chi^2 = 2.24$ ;  $p = 0.90$

In other national surveys ecstasy also emerges as being widespread among students, who still underestimate its capacity to induce addiction [11, 12].

Our study underlines the importance of the socio-cultural background particularly in the role played by peer pressure in influencing and perpetuating the abuse of drug. This particularly occurs during parties with friends and in nightclubs, though this behaviour becomes less frequent as we move from the north to the south [13].

There is a tendency for the first experience with drugs to occur during teenage years and, in general, the younger the age at which mild drugs start to be taken, the higher the risk of ending up with heavy ones [3].

As for prevention and information, both schools and media have been indicated as being inadequate by half the students taking part in the survey [14].

In matters of prevention against drug addiction, this opinion strongly confirms that through a global approach the most effective achievements in health education are inspired by cognitive behavioural techniques involving parents, the media, politicians and leaders [14, 15]. In this perspective, the “Alter Ego. Drugs and the brain” exhibition aims to be a useful instrument in assessing the cognitive aspects and providing adequate guidelines for the behavioural ones.

## References

- [1] *Relazione Annuale al Parlamento sullo stato delle tossicodipendenze in Italia 1997, Presidenza del Consiglio dei Ministri - Dipartimento per gli Affari Sociali.*
- [2] *Osservatorio Fumo, Alcol e Droga – Istituto Superiore di Sanità, Ministero della Salute, Roma 2002.*
- [3] Bruni A, Apolloni P. *Considerazioni epidemiologiche sulle tossicodipendenze in una provincia (Macerata).* Boll Farmacodip Alcolis 1996;XIX:13-8.
- [4] Magliocchetti N. *Relazione sulle attività dei Servizi Pubblici per le Tossicodipendenze nell'anno 1995, Ministero della Sanità.* Boll Farmacodip Alcolis 1996;XIX:47-86.
- [5] *Relazione Annuale per l'Osservatorio Europeo sulle Droghe e Tossicodipendenze 1995-96, Ministero dell'Interno.*
- [6] Guagliardo MF, Huang Z, Hicks J, D'Angelo L. *Increased drug use among old four grade and dropout urban adolescents.* Am J Prev Med 1998;15:42-8.
- [7] Cipriani F, Balzi D, Sorso B, Buiatti E. *Alcohol-related mortality in Italy.* Public Health 1998;112:183-8.
- [8] Ferrara M, Gentile A, Merzagora L. *Alter Ego – Droga e Cervello. Storia ed azione delle sostanze psicotrope.* Centro per la Diffusione della Cultura Scientifica - Università di Cassino 2000.
- [9] Mathias R. *Marijuana and tobacco use up again among 8th and 10th graders.* NIDA NOTES 1997;12:12-3.
- [10] The Third Triennial Report to Congress from the Secretary, Department of Health and Human Services. *Nature and extent of drug abuse in the United States, in Drug Abuse and Drug Abuse Research, Rockville 1991.*
- [11] Lorenzotti F, Rebolini G, Rombi L, Ulivi G. *Gli adolescenti e la dipendenza da droghe: una ricerca sulle conoscenze e le convinzioni.* Boll Farmacodip Alcolis 1996;XIX:34-9.
- [12] Santi M, Borselli D, Bertolotti S, Giaccherini S, Mingione E, Schifano F. *Giovani ed ecstasy: quale percezione del rischio?* Boll Farmacodip Alcolis 1997;XX:39-43.
- [13] Grosso L, Bartolomucci L, Raffo M. *Nuove tendenze del fenomeno droga: aspetti farmacologici, clinici e preventivi.* Difesa Sociale 1997;LXXVI:135-44.
- [14] Minozzi S, Focarile F. *Modelli etiologici e interventi di educazione sanitaria per la prevenzione delle tossicodipendenze.* Boll Farmacodip Alcolis 1995;XVIII:19-24.
- [15] Shalala DE. *Prevention and vulnerability research – stopping abuse before it starts.* NIDA NOTES 1993;Summer:6-7.

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