



PSYCHOLOGICAL PERSPECTIVE OF COCAINE CONSUMPTION

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The problem of cocaine consumption has been gaining importance in Spain in the last few years. Despite the important research efforts made in the field of pharmacology regarding cocaine abuse and dependence, the reference treatment continues to be psychological. This paper offers a synthesis of the most important aspects of cocaine consumption and treatment from a psychological perspective: prevalence data, factors related to the initiation and maintenance of cocaine consumption, assessment of consumption and other associated problems, and psychological treatments with the greatest scientific support. We conclude that psychological treatment is essential in this problem.

Keywords: cocaine, risk factors, psychological assessment, psychological treatment.

El consumo de cocaína está cobrando una creciente importancia en España en los últimos años. A pesar de los importantes esfuerzos que se vienen realizando desde el campo farmacológico en investigación sobre el tratamiento del abuso y dependencia de la cocaína, el peso del tratamiento sigue recayendo en el psicólogo. En el presente artículo hacemos una síntesis de los aspectos más importantes relacionados con el consumo de cocaína, desde una perspectiva psicológica: prevalencia, factores relacionados con el inicio y el mantenimiento en el consumo de cocaína, la evaluación del consumo y otros problemas que se asocian al mismo, y los tratamientos psicológicos con mayor respaldo científico. Se concluye que la intervención psicológica es central en este problema.

Palabras clave: cocaína, factores de riesgo, evaluación psicológica, tratamiento psicológico.

The utilization of the coca leaf dates back to the Preceramic Period IV (2500-1800 BC). It was in 1859 when A. Niemann isolated cocaine, the main alkaloid found in the coca leaf. Products which contain cocaine in their composition soon appeared: mainly alcoholic and non-alcoholic drinks such as the famous coca wine, Vin Mariani. With the arrival of the 20th century, a series of changes led to the illegalization of the use of cocaine (Escobedo, 2001): ambitions in the field of medicine, pressure from the prohibitionist movement and the association relating the consumption of this type of substances to minorities, immigrants and marginal groups.

Cocaine is a substance which is obtained from the leaves of a bush known as *Erythroxylon coca*. The products which are extracted are: coca leaves, coca paste, cocaine, freebase cocaine or crack cocaine (table 1). Cocaine is cocaine chlorhydrate. It is a white, crystalline powder with a bitter taste which is consumed via the nostrils ("snorted"), orally or intravenously. There is also

information about cocaine being consumed in cigarettes or mixed with cannabis (OEDT, 2004).

In relation to the prevalence of cocaine consumption, in a door-to-door survey carried out in Spain in 2005-2006 (OED, 2007), 7.0% of people between 15 and 64 have tried cocaine at least once, 3.0% consumed it in the last year and 1.6% in the last month. There has been an increase in its consumption in the past few years rising

TABLE 1
PRODUCTS DERIVED FROM THE COCA BUSH

Type of substance	Route of consumption	Initiation of effect (sec.)	Duration of effect (min.)	Cocaine concentration
Chewed coca leaf	Orally	300-600	45-90	0.5-1.5%
		600-1800	-	
Cocaine chlorhydrate	Snort	120-180	30-45	12-75%
	Intravenously	30-45	10-20	
Coca paste	Smoked	8-10	5-10	40-85%
Freebase crack		8-10	5-10	30-85%

Source: Modified from San (1996); Gold (1997); and Lizosain, Moro & Lorenzo (2001)

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from 1.8% in 1995 to 3.0% in 2005. The rate of consumption in the last month increased from 0.9% in 1995 to 1.6% in 2005.

The consumption of base cocaine or crack is much less widespread: 0.6% of the population has consumed it at least once and 0.2% consumed it in the last year.

In a survey on drugs in the school population (ESTUDES) conducted by PNSD (OED, 2007) in school-attending adolescents 14 to 18 years of age, there is a decrease in consumption, following an important increase in the previous study. In 1994, 2.5% had consumed cocaine at least once, 1.8% had done it in the last year and 1.1% in the last month. In 2006, 5.7% had consumed it at some time during their lives, 4.1% during the last year, and 2.3% in the last month (see figure 1). The consumption of cocaine by adolescents has doubled or tripled in the last ten years.

With the increase in the consumption of cocaine, the demand for treatment concerning problems with cocaine has also experienced a great increase since 1991. In 1991, there were 943 people in treatment for cocaine abuse; in 2005, this number rose to 22,820 (OED, 2007).

INITIATION AND MAINTENANCE OF COCAINE CONSUMPTION

In order to explain the reasons why some people develop problems caused by cocaine consumption and others in similar circumstances do not, we find various factors involved at different levels in the consumption of drugs (Becoña, 1999). A factor which is fundamental from the psychological perspective and that plays an important

part in the initiation, maintenance and even in the abandonment of substance consumption is reinforcement (Higgins, Heil & Plebani, 2004; Secades-Villa, García-Rodríguez, Fernández-Hermida & Carballo, 2007).

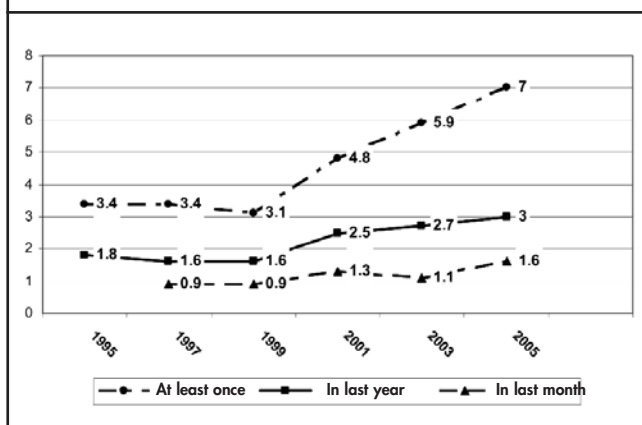
Psychoactive substances act as positive reinforcers which cause behaviors of pursuit and auto-administration of said substances. In the specific case of cocaine, maintenance in its consumption is not produced in order to eliminate the absence syndrome (Secades-Villa et al., 2007). That is, the subject does not consume in order to reduce a negative symptomatology (negative reinforcement), but for the positive effects that said substance produces (positive reinforcement).

As we indicated at the beginning of this section, we will outline the most important factors in the different existing phases in the consumption of psychoactive substances.

At the first level, there is the predisposition phase or antecedents of consumption, characterized by the existence of a biological, socio-cultural and psychological predisposition. Concerning biological predisposition, genetics explains a very low percentage of addiction cases (Cadoret, Yates & Devor, 1997) and studies were focussed principally on the case of alcohol (Goodwin, 1985; Miller, 1997). Socio-cultural environment is a determining factor when explaining predisposition to the consumption of certain substances (Westermeyer, 1996). In our society, the consumption of alcohol is an element inherent in our culture, there are multiple celebrations relating to wine and all celebrations involve gathering together with a glass of wine or some other alcoholic beverage, for which consumption is normalized and there is a predisposition toward its consumption. In the case of cocaine, the consumption of coca leaves in Andean countries is normalized and has specific functions (relief from altitude sickness, reduction of fatigue...). The problem arises when a society is exposed to an unknown substance, giving it different uses and utilizing more harmful forms of consumption. Finally, within the predisposition phase, we would like to indicate the importance of three psychological factors: learning, personality and intelligence.

In the introduction to the substance phase, the relevant factors are the environment in which the individual operates, learning, the socialization received through the family, peers, school and media, and expectations, both those existing toward drug consumption and those referring to oneself, also denominated by Bandura (1995) as perceived self-efficacy. Socialization is a fundamental

FIGURE 1
PREVALENCE OF COCAINE CONSUMPTION IN SPANISH POPULATION AGED 15 TO 64





process in the life of an individual since it facilitates the learning of the attitudes, beliefs, values, roles and expectations of society. Although socialization is produced throughout a lifetime, the key period lasts until adolescence (Craig, 1996), with parents and family being of special relevance at this age as a determining factor when choosing these (Kandel, 1996).

In the experimentation with the substance phase and initiation in its consumption, the variables which determine whether or not the consumption of drugs will occur are a complete series of risk factors which influence development (constitutional, familial, emotional, interpersonal, intellectual, ecological and vital events which generate stress) (Coie, Watt, West, Hawkins, Asarnov, Markman et al., 1993). In relation to the availability, accessibility and price of the substance, and the risk perceived, the studies which analyze consumption in the general population indicate that the increase in consumption is accompanied by a decrease in perceived risk about the substance (Chatlos, 1996, OED, 2007), along with accessibility to the substance and low price.

Other determining factors are beliefs, attitudes, internalized norms, values and conduct intention. At the same time, these factors are determined by the socialization process in which family, peers, school and media all play a fundamental role. Finally, the emotional state, the presence or not of psychopathological problems (Chatlos, 1996), and the existence of adequate coping strategies for the different situations we must face, are also important factors in the explanation of the initiation of consumption.

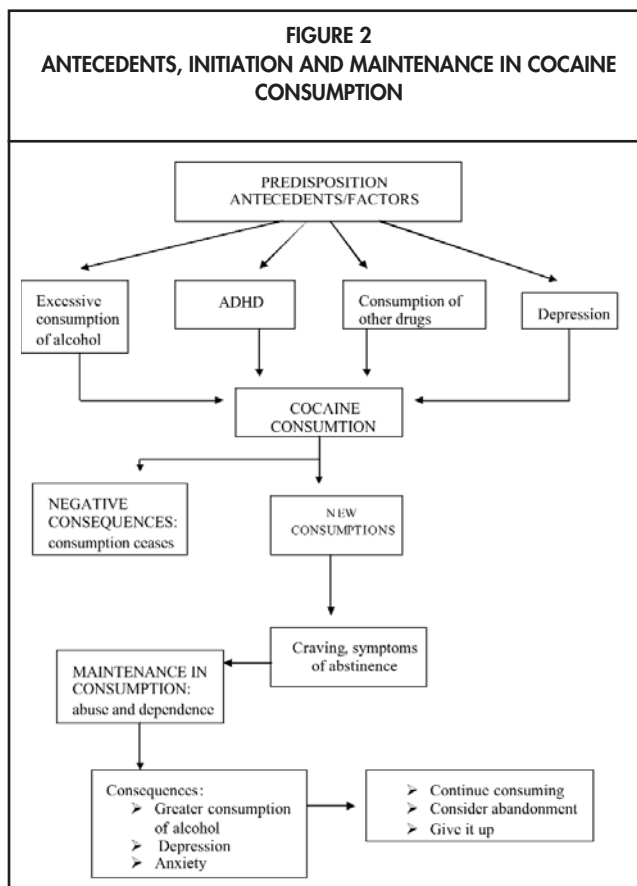
In the case of the initiation in cocaine consumption, (see figure 2), the existence of previous psychopathological problems such as depression or attention deficit/hyperactivity disorder (López & Becoña, 2006a), the previous consumption of other substances, such as cannabis and the excessive consumption of alcohol, are factors frequently related to experimentation with cocaine. The key element which explains the maintenance of consumption refers to the consequences derived from it concerning oneself, family and peers. If the consequences which follow consumption are fundamentally negative, consumption will cease.

If consumption is continued, the next step is abuse and dependence. The consequence of this process is an increase in the negative consequences derived from consumption (greater consumption of alcohol, psychopathological problems such as depression and

anxiety, financial problems, familial problems...). The importance of these consequences for the individual is what will determine whether consumption is continued or whether abandonment of consumption is considered and finally consumption is terminated. We cannot do an extensive review of what would have to be done at a prevention level in the case of cocaine consumption, but we can indicate that based on the abovementioned information, different measures oriented towards reducing vulnerability factors can be designed, individuals at risk of consuming substances can be trained in different skills or universal programs for the prevention of drug consumption can be put into practice (Becoña, 2002; Tolan, Szapocznik & Sambrano, 2006).

ASSESSMENT OF COCAINE CONSUMERS

Assessment is the step previous to the initiation of treatment. The assessment results will guide the planning of the treatment. Moreover, throughout treatment ongoing assessment will be necessary in order to monitor progress and to determine treatment results. Preliminary assessment of treatment comprises three areas:



assessment of the problem for which treatment is demanded, assessment of other problems which may interfere with treatment and the determination of the individual's resources.

In order to assess the existence of dependence according to DSM criteria, we avail of the *Structured Clinical Interview for DSM-IV Disorders* (SCID) in its Spanish version (First, Spitzer, Gibbon, Williams & Smith-Benjamin, 1998). Other instruments which assess dependency are the Severity of Dependence Scale (SDS, Gossop, Darke, Griffiths, Hando, Powis, Hall et al., 1995), the Cocaine Addiction Severity Test (CAST, Washton, 1995) the Cocaine Assessment Profile (CAP, Washton, 1995), the Drug Impairment Rating Scale for cocaine (Halikas & Crosby, 1991) and the Lifetime Severity Index for cocaine use disorder (LSI, Hser, Shen, Grella & Anglin, 1999). The Addiction Severity Index (ASI, McLellan, Luborsky, Cacciola, Griffith, McGahan & O'Brien, 1992) is more complete than the abovementioned and enables planning of the intervention and follow-ups.

For the assessment of the cocaine abstinence syndrome the Cocaine Selective Severity Assessment (CSSA) instrument (Kampman, Volpicelli, McGinnis, Alterman, Weinrieb, D'Angelo et al., 1998) can be used.

The questionnaire most used to assess the craving for cocaine is the Cocaine Craving Questionnaire (CCQ, Tiffany, Singleton, Haertzen & Henningfield, 1993), which has the advantage of considering craving as a multidimensional construct but the inconvenience of being very extensive. Other questionnaires which are used are the Cocaine Craving Scale by Weiss, Griffin and Hufford (1995), the Yale-Brown Obsessive Compulsive Scale Modified to Reflect Obsessions and Compulsions Related to Drug Use (Y-BOCS-du, Goodman, Price, Rasmussen, Mazure, Fleischmann, Hill et al., 1989), and *la Escala de Evaluación del Craving [The assessment of craving scale]* by López and Becoña (2006b). Other questionnaires related to cocaine consumption are the Inventory of Drug-Taking Situations (IDTS, Annis, Turner & Sklar, 1997), the Cocaine High-Risk Situations Questionnaire (Michalec, Zwick, Monti, Rohsenow, Varney, Niaura et al., 1992) and the Cocaine Relapse Interview (CRI, McKay, Rutherford, Alterman & Cacciola, 1996).

With respect to the assessment of problems which interfere with treatment, psychopathological assessment is fundamental. There are a multitude of instruments which enable the assessment of the presence of symptoms or

psychopathological disorders, but based on the population with which we are working, the psychopathology which appears most frequently must first be evaluated.

Hence, we indicate two phases: in the first, the aim is to detect whether there are other problems which interfere with treatment, and in case of their detection, continue on to the second phase which is more specific with assessment instruments that are more extensive and specific for the pathology present.

In the first phase, screening instruments which detect the psychopathological symptoms most frequently found in the population we are working with are used. In cocaine consumers, it is necessary to assess depressive symptomatology (López & Becoña, 2006a, López & Becoña, 2007) with a screening instrument such as the *Beck Depression Inventory II* (Beck, Steer & Brown, 1996), and subsequently, if we wish to establish a diagnosis (phase two), we can administer a diagnostic interview such as the SCID-I (First et al., 1998). The presence of personality disorders is also frequent among this type of consumers (López & Becoña, 2006a, López & Becoña, 2006c) for which it is necessary to use an instrument which detects this type of disorders such as the MCMI-III (Millon, 1999). If we detect the presence of a personality disorder and we wish to establish a diagnosis, we administer a diagnostic interview such as the SCID-II (First, Gibbon, Spitzer, Williams & Smith Benjamin, 1999).

Another aspect to assess is the consumption of other drugs; in cocaine consumers, the presence of problems with alcohol is very frequent (López & Becoña, 2006d). A very useful instrument, for its brevity and easy correction, is the *Alcohol Use Disorders Identification Test*, (AUDIT, Contel, Gual & Colom, 1999, Saunders, Aasland, Babor, De la Fuente & Grant, 1993). If we detect the presence of problems with alcohol consumption, we can administer a more extensive and specific questionnaire such as the MALT (Rodríguez-Martos, 1986).

The SCL-90-R (Derogatis, 2002) is also an interesting screening questionnaire. It evaluates the presence of different psychopathological symptoms and perceived subjective distress; hence, it is useful in assessing the evolution of treatment.

An important part of assessment is determining the subject's stress coping strategies, which can be either a resource or interference in treatment. Recently designed instruments for use in drug-dependent populations are the



Variables de Interacción Psicosocial [Psychosocial Interaction Variables] (VIP, Pedrero, Pérez, De Ena & Garrido, 2005) and the *Escala Multiaxial de Afrontamiento Disposicional [Dispositional Coping Multiaxial Scale]* (EMA-D, Pedrero, 2007).

To assess the stages and processes of change, we have the *Cocaine: Processes of Change Questionnaire* (Martin, Rossi, Rosenbloom, Monti & Rohsenow, 1992) and the *University of Rhode Island Change Assessment Scale (URICA)*, McConaughy, Prochaska & Velicer, 1983).

Finally, after reviewing different assessment instruments related to cocaine consumption, we should not forget the importance of functional analysis as a procedure of psychological assessment which is fundamental in the development of an appropriate treatment design.

PSYCHOLOGICAL TREATMENT OF COCAINE DEPENDENCE

In spite of the attempts by the pharmaceutical industry to discover a drug for the treatment of cocaine dependence, these attempts to date have been unsuccessful (*European and Monitoring Center for Drugs and Drug Addiction; EMCDDA*, 2007; Higgins, Alessi y Dantona, 2002).

At the present time, psychological treatments are those which show greater evidence for the treatment of cocaine dependence. The community reinforcement plus Vouchers approach and cognitive-behavioral therapy are of special interest (Becoña et al., 2008; Rawson, McCann, Flaminio, Shoptaw, Miotto, Reiber et al., 2006; Secades & Fernández-Hermida, 2001; Terán, Casete & Climent, 2008).

Programs of community reinforcement are based on providing the subject with natural reinforcement contacts found in his/her social environment to increase the probability of maintaining abstinence (Marlowe, Kirby, Festinger, Merikle, Tran & Platt, 2003). They are multicomponent behavioural treatments which have various key elements: a) They address aspects which may limit adherence to treatment such as outstanding judicial cases or not having a place to sleep; b) Those who are unemployed or those whose work increases the risk of drug consumption receive vocational counselling; c) They identify antecedents and consequences of consumption, and then choose healthy alternatives to the positive consequences that they find in consumption; d) Couples therapy is offered;. e) Skills training is carried out to work on the deficits which make achieving abstinence difficult or which increase the probability of suffering a relapse; f)

Treatment for problems with other substances is offered (Higgins et al., 2004).

Frequently, these programs are accompanied by incentive-based therapy, which is a procedure for managing contingencies in order to obtain and maintain abstinence, and to increase adherence to treatment (Higgins, Alessi & Dantona, 2002). Patients earn vouchers as they meet abstinence or treatment goals and the vouchers can be exchanged for different reinforcers (retail goods or services available in the community).

A complete review of the combined utilization of both procedures and its efficacy can be found in Higgins et al. (2002) and Higgins et al. (2004).

With respect to the efficacy of this treatment when compared to others, Higgins et al. (2002) note that community reinforcement plus contingency management is more efficient than counseling. Petry, Alessi, Carroll, Hanson, McKinnon, and Rounsaville (2006) indicate better results with this treatment than with a standard treatment (group therapy for relapse prevention, HIV education, skills training and coping strategies, and the 12-step program). Rawson et al. (2006) have found better retention and abstinence results during treatment with contingency management than with cognitive-behavioral treatment, although during follow-up abstinence rates are similar.

Petry, Alessi, Marx, Austin and Tardiff (2005) have designed a program based on the use of reinforcers contingent on the achievement of objectives, but which reduces costs. In this approach, instead of receiving a predetermined reinforcer following the achievement of a treatment goal, the subject earns the possibility of obtaining a reinforcer based on a randomized draw; prizes may be high or low in value.

Secades and Fernández-Hermida (2001) consider the Community Reinforcement Program plus incentive therapy to be a well-established treatment. The results of different studies indicate that with incentive therapy good results are obtained during the treatment as well as increasing its adherence, but that on finalizing treatment, positive results are not maintained (García-Rodríguez, Secades-Villa, Álvarez, Río, Fernández-Hermida, Carballo et al., 2007; Higgins, Heil, Dantona, Donham, Mathews & Badger, 2006; Higgins et al., 2003; Rawson et al., 2006; Secades-Villa, García-Rodríguez, Higgins, Fernández-Hermida & Carballo, 2008).

It is worth noting the interesting studies published recently in this regard in Spain referring to the initiation



of this type of programs in our environment (García-Rodríguez et al., 2006; Secades-Villa, García-Rodríguez, Fernández-Hermida & Carballo, 2007).

With respect to cognitive-behavioral treatments, the objective is for individuals to learn alternative behaviors to those associated to cocaine consumption, and self-control strategies. The most outstanding treatment in this line is that of Carroll (1998) and consists of functional analysis of consumption, problem-solving training, detection and coping with *craving*, coping skills, detection of cognitions related to consumption, identification of risk situations and coping with them. Secades and Fernández-Hermida (2001) consider it to be a treatment of probable efficacy.

Carroll (1996) indicates that the relapse prevention techniques included in cognitive-behavioral treatments are especially effective in people with high cocaine dependency and moreover, in case of relapses, these are less severe.

One of the major criticisms that this type of treatment has received is the fact that the patient must have adequate cognitive functioning which is not always possible among cocaine consumers. Both chronic cocaine consumption and the abusive consumption of alcohol produce cognitive deterioration (EMCDDA, 2007).

We can find an interesting and recent review about the efficacy of these treatments in García-Rodríguez (2008).

Besides these two treatments, which are those with the greatest scientific endorsement, there are other interventions: Psychosocial treatments which group together individual and group assessment, cognitive therapy and supportive-expressive therapy. Different comparative studies which have been carried out (Crist-Christoph, Siqueland, Blaine, Frank, Luborsky, Onken et al., 1999; McMahon, Kouzekanani & Malow, 1999) indicate that the combination of individual and group assessment is more effective than cognitive therapy and supportive-expressive therapy, although people remain in treatment for less time. They also highlight interventions based on motivational interviewing (Miller & Rollnick, 1999). These types of interventions are usually accompanied by others and have obtained good results in consumers with low motivation at the beginning of treatment (Rohsenow, Monti, Martin, Colby, Myers, Gulliver et al., 2004), and even brief interventions have enhanced abstinence rates in heroin and cocaine consumers (Bernstein, Bernstein, Tassiopoulos, Heeren, Levenson & Hingson, 2005).

CONCLUSION

At present, psychological treatment for problems with cocaine consumption is the treatment of preference (EMCDDA, 2007). Despite the attempts of pharmaceutical laboratories to discover an efficient treatment, to date these attempts have been unsuccessful. Commercialized pharmacological treatments can only be efficient when a psychopathological problem is present (e.g., depression, anxiety...) which interferes with treatment. In this case, it is necessary to address the psychopathological disorder in order to be able to solve the problems concerning consumption (Terán et al., 2008). However, it is not always necessary to administer a pharmacological treatment. Psychological intervention may be sufficient. Preliminary assessment and the evaluation of the clinician play an important role at this point.

The aim of the present article is to review the importance of Psychology in the field of addictions and their treatment, specifically that of cocaine. On many occasions, the fundamental work carried out by the psychologist in both the prevention and treatment of problems concerning the consumption of psychoactive substances, as well as the comprehension of its initiation and maintenance, has been ignored (Becoña, 2007; Secades-Villa et al., 2007).

Drug addiction is a very important area which cannot be ignored by Psychologists. The clinicians who work in the treatment of addictions not only deal with the abandonment of the consumption of psychoactive substances, also with great frequency they have to intervene in other types of symptoms or psychopathological disorders (Becoña et al., 2008). As indicated by various reviews published in the last few years (Ochoa, 2000, San, 2004), there is a wide range of other psychopathological problems among cocaine consumers, hence the work of the psychologist in the area of addictions is, on many occasions, much more complete than in other areas of mental health. These clinicians have to learn to manage the presence of a certain psychopathological problem, such as a personality or affective disorder, together with a problem concerning the consumption of psychoactive substances for which the individual has demanded treatment (Becoña et al., 2008). This last point is a key aspect, since, on many occasions, the individual realizes that he/she has a problem with drug consumption but is not conscious of the presence of another psychopathological problem, for which the work of the psychologist is doubly important. Furthermore, it is



necessary to address all the problems that the individual presents together because, if not, the final objective, which is the abandonment of the consumption of substances, will not be achieved.

Therefore, the role of the psychologist is fundamental in the area of addictions, both in its prevention and its treatment, and, more specifically, in the area of cocaine consumption. For all these reasons, it is necessary that research in this area be continued in order to optimize the processes of assessment and treatment in order to obtain better results, and above all, reduce the probability that in the future new relapses into consumption will be produced.

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