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BRIEF REPORT

Perception of Control Over Cocaine Use and Stages of Change

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There is persistent disagreement over the degree of control that addicted patients are inferred to exercise over their drug use behavior. The study presented here proposes to investigate the perceptions and expectancies of controlled drug use in cocaine-addicted patients along the motivational stages that comprise their process of change. A total of 142 cocaine-addicted patients were evaluated with an original questionnaire—the Addictive Control Belief Inventory (ACBI)—and other validated inventories. The results were statistically analyzed. The precontemplative stage was characterized by the greatest perception of control over drug use, whereas maintenance showed the lowest perception of control. The results make it possible to infer a relation between awareness of the problematic aspects of drug use and a decrease in perceptions of controlled drug use.

Keywords: perceptions of control, cocaine, stages of change

Abstinence, Moderate Use, and Control

Traditional alcohol dependence treatments are usually based on the disease model of alcoholism (Jellinek, 1946, 1960) and propose abstinence as the only valid therapeutic goal. The treatments for the different drug dependencies that were based on the disease concept of alcoholism were also oriented toward abstinence. Such is the case of the extensively replicated Minnesota Model (White, 2000). From this disease perspective, the drug-addicted individual is considered vulnerable to the compulsive use of any substance that alters or modifies mood (Washton, 1989). Such chronic tendency toward compulsive and self-harming use requires total abstinence from psychoactive substances as the only pathway toward recovery. On the other hand, programs based on the Harm Reduction approach accept moderate use of alcohol and drugs as a viable therapeutic goal in drug dependency treatment. The Harm Reduction approach currently seeks to promote any positive change in drug users' lives, including drug substitution, decreased consumption, and attempts to moderate it (Marlatt, 1998).

Other approaches also offer alternatives to abstinence, such as Cognitive Therapy (Beck, Wright, Newman, & Lisse, 1993) and Motivational Interviewing (Miller & Rollnick, 1991), in which the patient is allowed and encouraged to negotiate therapeutic objectives. Instead of being regarded as a chronic vulnerability to compulsive use, be it biological or psychological, addiction may be interpreted as a learnt behavior that may be reversed or modified (Sanchez-Craig & Wilkinson, 1987).

Perceived Control and Stages of Change

A central variable that marks the difference between the abstinence and moderation perspectives, when defining therapeutic goals, is the degree to which drug use behavior is considered to be manageable or controllable by the addicted patients. The chronic and progressive disease model—advocated by abstinence defenders—is consistent with an interpretation of drug use as a compulsive and unmanageable behavior that must be stopped. Moderation supporters, on the other hand, are inclined to understand addiction as a learnt recurrent behavior that can be modified and controlled. This controversy could benefit from empirical research on what these patients perceive about their own behavior and on the possible variations of such perceptions throughout the process of change.

According to Prochaska & DiClemente's transtheoretical model (1986), this process of change may be divided into five phases or motivational stages (Precontemplation, Contemplation, Prepara-

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tion, Action, and Maintenance). Some studies have demonstrated significant differences in the evaluation of advantages and disadvantages of drug use (or decisional balance) made by subjects, depending on the motivational stage in which they are (Prochaska et al., 1994; Rossi et al., 2001; Velicer et al., 1985). In the same way, one would expect to find differences among the different stages with regard to addicts' perceived control over drug use.

Therefore, the study presented here is intended to investigate the relation between the perception of control over specific drug consumption—in this case, cocaine consumption—and the different stages in the process of change in addictive behavior. Of special interest is the inquiry into a possible relation between perceived control and the contemplative stage given that this stage is characterized by problem recognition associated with drug use and the first considerations of change in the addictive behavior (Prochaska & DiClemente, 1986). According to traditional Twelve-Step programs such as Narcotics Anonymous (1987), the process of change begins when the subjects become aware of the compulsive nature of drug use and the resulting inability to control this behavior. Along the theoretical lines that are based on the disease model, subjects in the contemplative stage would be expected to perceive a considerably lower degree of control over drug use than those in the precontemplative stage given the level of awareness of the supposedly compulsive characteristics of such behavior.

Furthermore, putting to the test the users' own capacity for self-control—in other words, testing their personal ability to use substances in a moderate or controlled way—is one of the typical relapse triggers in abstinent patients (Marlatt & Gordon, 1985). Therefore, it is worth evaluating not only current perceptions of control but (also) the short- and long-term expectations regarding the possibility to control drug use. According to Prochaska & DiClemente's (1986) transtheoretical model, self-efficacy in behavioral change would increase—whereas the temptation to relapse would decrease—as users go through the stages in the process of change (Migneault, Adams, & Read, 2005). As a result, there may be a greater propensity to put drug use control to the test and a more favorable attitude toward present and future attempts at moderation as addicted subjects move away from the Maintenance stage and approach Precontemplation. It would also be worth evaluating addicted subjects' perceptions of risk and control over other substances (including alcohol), as well as their perceptions of control over their preferred drug, given that in the disease model subjects are considered vulnerable to any psychoactive substance (Washton, 1989); from the perspective of the dual-affect cognitive model, even small doses of alcohol or other drugs may work as pleasant stimuli eliciting craving (Baker, Morse, & Sherman, 1987). The temptation to put control to the test and a more favorable attitude toward controlled use of other substances could be expected as subjects approach the precontemplative stage.

Method

Conceptual and Operational Definitions

With regard to the craving phenomenon, Tiffany, Singleton, Haertzen, and Henningfield (1993) developed a multidimensional scale for assessing cocaine craving, the Cocaine Craving Questionnaire (CCQ), which includes factors or dimensions related to the loss of control over consumption (Perceived Lack of Control Over Use) and anticipation of the difficulty to avoid consumption if the drug is available. However, the use of this subscale as a single measurement instrument could be insufficient because it evaluates only two aspects of controlled drug use: items focus on the ability to control the dose during a hypothetical drug use event and on the ability to resist consumption upon hypothetical drug availability. Other aspects that are relevant to the study of control are not explored. These include the reasons for affirming control over cocaine use, future expectancies of this behavior, and perceived control over other substances (e.g., alcohol). As a result, if other aspects of the variable are to be covered, it becomes necessary to design and apply an additional, more extensive instrument.

One possible way of assessing the perception of control involves, as in the case of CCQ, evaluating the opinions and beliefs that account for such perception. The cognitive approach has focused on the role played by different types of beliefs in drug search and use behaviors (Beck et al., 1993), particularly the so-called addictive beliefs. These may be considered a set of ideas associated with pleasure seeking, problem solving, relief, and escape through drug use, and they may be classified in three categories: (a) anticipatory beliefs, (b) relief-oriented beliefs, and (c) permissive or facilitative beliefs. According to the cognitive model, beliefs concerning effective control of consumption behavior may therefore be considered addictive beliefs because they tend to justify and entitle drug use. Included in this set are typical automatic beliefs or thoughts that, depending on context, may work as permissive beliefs because they entitle drug use in specific situations (e.g., "It's all right to use drugs on certain occasions") or basic beliefs related to drugs and present or future consumption behavior (e.g., "I can handle drugs because I never consume when I'm alone," "I will be recovered when I can use drugs moderately again," etc.).

For the sake of convenience, in this study the label "addictive control beliefs" refers to all of those beliefs that entitle drug use on the basis of a future expectancy or present perception of efficacy in the addicted individuals' ability to set limits on their drug use behavior. The making of a scale gathering some of such beliefs, called the Addictive Control Belief Inventory (ACBI), is aimed at operationalizing the perception (present) and expectancy (future) of control over drug use. The term "addictive control beliefs" prevents confusion with similar terms related to the theoretical field of drug dependence that also use the word "control," albeit with different meanings. For example, in Cognitive Therapy, "control beliefs" are those which decrease the probability of taking or abusing drugs, such as beliefs in the disadvantages of consuming or those that emphasize the subject's ability to resist the urge to take drugs (Beck et al., 1993).

Measures

The following inventories were used for identifying the possible existence of statistically significant differences regarding the perception of control over drug use according to motivational stage: ACBI, the University of Rhode Island Change Assessment Scale (URICA; Martin, Rossi, Rosenbloom, Monti, & Rohsenow, 1992; McConnaughy, DiClemente, Prochaska, & Velicer, 1989; Rossi, Rosenbloom, Monti, & Prochaska, 1992;

Spanish version: Tejero & Trujols, 2003), the items corresponding to the dimension Perceived Lack of Control Over Use of Cocaine Craving Questionnaire-*Now* (CCQ-NOW); Spanish version: (Tejero & Trujols, 2003; Tiffany et al., 1993), and a brief questionnaire for classifying subjects according to stage of change (Prochaska et al., 1994; Rossi et al., 2001; Spanish version: Tejero & Trujols, 2003). This questionnaire was included because it was difficult to classify subjects in a single stage of change using URICA given that this measurement makes it possible to derive scores for each of the stages, therefore it does not provide a single result. Although URICA is designed to provide a more accurate assessment of the degree of intention, disposition, and attitude toward change, it is not practical in terms of categorical classification. It is possible to overcome this difficulty by obtaining profiles through cluster analysis (Prochaska & DiClemente, 1992), but such typologies were not to be used. Instead, traditional categories were obtained by administering the brief questionnaire (see *Discussion*). Locus of control and drug use questionnaires were not applied because a Spanish version of the existing questionnaires was not available when the evaluations were conducted (see *Discussion*).

Subjects

A total of 142 cocaine addicted subjects were evaluated with ACBI, URICA, CCQ-NOW (factor: Perceived Lack of Control Over Use), and a brief questionnaire. Of those, 110 (76 men and 34 women) were in ambulatory treatment in four different therapeutic centers; they were aged 18−55 with a mean age of 27.2 years. The remaining 32 subjects (21 men and 11 women; mean age 25.1 year) were evaluated during admission into one of the institutions. Hospitalized patients were not evaluated so as to minimize institutional influence and to maximize the effect of social and environmental variables. All of the evaluated subjects were diagnosed with cocaine dependence disorder according to the *Diagnostic and Statistical Manual of Mental Disorders* (fourth edition, text revision) by their corresponding therapists or by admissions professionals. Exclusion criteria included serious mental disorder (e.g., insanity, schizophrenia, etc.) and cognitive or linguistic limitations that would prevent subjects from responding adequately to the evaluation instruments. Subjects and institutional authorities gave their consent to these evaluations. Information about possible indicators of substance dependence severity, such as the frequency, amount, and consequences of consumption, could not be obtained because such data were not always included in the patients' medical history or in their admission file or because the research team was unable to make their own measurements within the limited time that the institutions allowed for the subjects' evaluation.

Construction of ACBI

Thirty-one items were derived from clinical interviews, which presented common beliefs in relation to future expectancies and current perceptions of controlled drug use. Recommendations regarding simple, clear, and precise wording of the items were followed (Matesanz Nogales, 1997). The items were rated in terms of agreement using a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The total values assigned to the subjects resulted from the values considered for each item. All of the items were formulated positively so that agreement with each of them increased the score for a sensation of control. The values for the responses were assigned as follows: −2 for *strongly disagree*, −1 for *disagree*, 0 for *neither agree nor disagree*, 1 for *agree*, and 2 for *strongly agree*. Although the items can be grouped into subcategories according to specific themes, it was made sure that all of them belonged to the same general category of control over the problem behavior.

The original 31-item questionnaire was submitted for revision to a psychiatrist and two psychologists, all of them experts in the treatment of drug dependencies, who approved most items except for two, which were omitted. A pilot application of the scale was conducted with a reduced number of subjects ($n = 20$) to ensure the comprehensibility of the statements and to make any necessary changes. The new 29-item version, the URICA, CCQ-NOW (Perceived Lack of Control Over Use), and the brief questionnaire were administered to a sample of 142 cocaine-addicted subjects. According to the obtained results, the items that were not considered discriminatory were removed by using the contrasting group criterion. This criterion makes it possible to establish, through a difference of means test (t test), whether the subjects with greater perception of controlled drug use (i.e., those in the higher quartile) showed significant differences in how they answered each of the items as compared with the subjects with lesser perception of control (i.e., those in the lower quartile).

An exploratory factor analysis of the scores obtained for the 26 remaining items was performed using the principal component method and orthogonal rotation (Varimax method). Factorially complex or theoretically incoherent items were deleted, and the resulting final scale contained 24 items. Cronbach's α coefficients were calculated for each of the subscales obtained in the factor analysis. Following the criterion proposed by George and Mallery (1995), the Recovering Control subscale obtained a questionable value (Cronbach's $\alpha < .7$); therefore, it was considered appropriate to add to it one of the items (item 20 in the final version) on the Moderate Use subscale, which made it possible to obtain an acceptable coefficient (Cronbach's $\alpha = .71$). It should be noted that the added item was theoretically coherent with the rest of the items on the Recovering Control subscale and had an adequate score to be included within the factor (see *Exploratory Factor Analysis*). In addition, the questionnaire's construct validity was studied in terms of the relation between perception of control and motivational stage according to the hypothesis proposed following the disease model (see *Perceived Control and Stages of Change*). Concurrent criterion validity was also examined through Pearson correlations between ACBI and the CCQ-NOW Perceived Lack of Control Over Use factor and between ACBI and URICA's Precontemplation subscale. A reliability test of the scale was performed by calculating Cronbach's α coefficient. Finally, a hierarchical linear regression analysis was used to examine the incremental validity of the ACBI score over and above the CCQ-NOW Perceived Lack of Control Over Use factor score. In step 1 of the two-step hierarchical linear regression, the CCQ-NOW scores were regressed onto URICA's Precontemplation subscale scores. In step 2, the ACBI scores were added and regressed onto URICA's Precontemplation subscale scores.

Statistical Analysis of the Results

The collected data were processed using the Spanish version of the SPSS 15.0 software package. In addition to the statistical analysis for ACBI validation (see *Construction of the ACBI*), average scores according to motivational stage for ACBI were calculated and converted to standard (T) scores to facilitate result comprehension. Analysis of variance (ANOVA) tests using the Scheffé post hoc tests were performed to find statistically relevant differences between average scores. In addition, average scores according to motivational stage were performed for the different subscales obtained in the factor analysis, and an ANOVA test using the Scheffé post hoc tests was conducted to draw a comparison. Pearson coefficient correlations were performed to find possible associations between the inventories' total scores or between their corresponding subscales. Additional ANOVAs with Scheffé post hoc tests were conducted to find statistically relevant differences in average ACBI scores between genders (male or female) and age groups divided by intervals of 10 years (18–27, 28–37, 38–47, and 48–57).

Results

Exploratory Factor Analysis

The factor analysis with Varimax rotation of ACBI raw scores revealed the presence of four principal components (see Table 1). Only those items with a value equal to or higher than 0.40 were considered, according to Stevens's criterion (1992, as cited in Martínez Arias, 1995), who holds that each item must show at least 15% variance in common with the factor. A possible theoretical justification for the distribution of the variables (items) in four different groups is presented here.

Component 1: Full Control. This group gathers the beliefs that focus on the sensation of full control on the basis of circum-

Table 1
Rotated Component Matrix for ACBI

	Factors			
	Full Control	Moderate Use	Personal Differentiation and Risk Minimization	Recovering Control
1. I can handle drugs; they don't control me.	0.82			
2. I can handle drugs because I only use them with certain people or in certain places.	0.82			
3. I use drugs when I feel like it. I don't use them when I don't feel like it.	0.71			
4. I think I can handle drugs because I don't use them on a daily basis.	0.71			
5. I have a good life and this proves that I've got drugs under control.	0.78			
6. I think I can handle drugs because I never use them when I'm alone.	0.69			
7. I meet my responsibilities and obligations; therefore, I've got drugs under control.	0.74			
8. I can handle drugs because I only use them during certain activities, days, or hours of the day.	0.82			
9. I can quit drugs whenever I want to.	0.66			
10. The periods of my life when I didn't use drugs prove that I can handle them.	0.73			
11. I can't see the problem with using drugs just a little.		0.71		
12. I'll be recovered when I'm able to use drugs moderately.		0.64		
13. If my circumstances don't allow me to go into excess, then I can do drugs (e.g., if someone else is watching me, if I can only spend little money, etc.).		0.71		
14. It's alright to use drugs on special occasions.		0.80		
15. I don't think I'm an addict.			0.61	
16. I'm different from the rest of the addicts.			0.51	
17. My problem is only with one particular drug but not with the others.			0.44	
18. Drinking alcohol won't lead me to use drugs and it isn't a risk for me.			0.56	
19. I'm cured. Drugs aren't a problem for me anymore.			0.77	
20. After all of this time without doing drugs, I deserve a fix.				0.44
21. If I could handle drugs in the past, I'll be able to do it again.				0.55
22. I must cut down on drugs to avoid all of the problems that they cause.				0.59
23. Sometimes I feel strong enough to try to handle drugs again.				0.55
24. My addictive drug use was caused by problems that I have already overcome.				0.41
Number of items	10	4	5	5
Cronbach's α	0.94	0.81	0.75	0.71

stantial or biographic justifications. This sensation of control can be defined as the perception that drug use behavior is the result of a completely voluntary decision, without any morbid alterations of the individual's free will.

Component 2: Moderate Use. The beliefs grouped here refer to moderate drug use in the present (11, 13, 14) or to the possibility of recovering control over drug use behavior at some point in the future (12).

Component 3: Personal Differentiation and Risk Minimization. This group gathers beliefs that partially or totally deny the drug addict label (16, 17) as well as some that minimize the risk of using alcohol or drugs (18, 19, 20). The fact that both types of beliefs are grouped in the same component could mean that nonacceptance or incomplete acceptance of the diagnosis (resulting from the perception of difference from other addicts) would entitle alcohol and/or drug use.

Component 4: Recovering Control. The beliefs in this group seem to combine a certain degree of problem recognition with a feeling of possible control or grip over it in the present (20, 24) or in the future (21, 22, 23). They resemble the high-risk situations described by Marlatt and Gordon (1985), in which the addicted patients voluntarily decide to put to the test their own personal control and ability to respond to stimuli such as irresistible desire or craving.

Average Scores in ACBI

The categorical classification according to the brief questionnaire (Prochaska et al., 1994; Rossi et al., 2001) revealed most subjects in the Action stage of the change process (47.18%) with the rest of the sample being equitably distributed among the other three stages (Precontemplation = 17.6%; Contemplation = 22.53%; Maintenance = 12.67%; see Table 2). The calculation of average scores for each of the stages revealed considerable differences in ACBI total scores between the precontemplative group and the rest. If only the precontemplative and contemplative stages are compared, it is possible to observe that ACBI scores are substantially lower in the latter. ACBI results seemed to remain relatively stable in the subsequent Action stage, but a decrease was observed in the average score of the Maintenance stage. Post hoc tests showed statistically significant differences ($p < .05$) among the average scores of the motivational stages, except when comparing the mean between the Contemplation and Action stages, which did not provide a significant result ($p = .99$; see Table 3). The comparison between the means of the different ACBI components according to motivational stage showed a similar result, with significant differences among stages for the Full Control, Moderate Use, and Personal Differentiation factors, whereas no significant differences were found between the Contemplation and Action stages. Regarding the Recovering Control factor, the aforementioned exception is confirmed, and neither were significant differences found between the precontemplative and contemplative stages ($p = .1$). With regard to the available demographic data, no significant differences were found in average ACBI scores between genders or among the selected age groups.

These results may be interpreted as evidence of the scale's construct validity, and they confirm the disease model hypothesis that becoming aware of the problematic behavior—which occurs in the contemplative stage and remains in the subsequent ones—is associated with the perception of loss of control over drug use (see *Perceived Control and Stages of Change*). However, these results may also be regarded as evidence in favor of the transtheoretical model hypothesis that holds that the temptation to relapse (operationalized in this case through the items under the Moderate Use, Recovering Control, and Personal Differentiation factors) decreases as subjects go through the stages in the process of change (see *Perceived Control and Stages of Change*). The data provided by these subscales may, in turn, be regarded as possible proofs of the ACBI incremental validity with respect to CCQ-NOW for assessing the perception of control given that ACBI may provide information about variables that the latter does not evaluate, such as the temptation to put personal control to the test or the propensity to use other substances.

Table 2
Raw and Standard (T) Average Scores in ACBI

Motivational Stage	ACBI		
	Raw Score	Standard Deviation	*T* Score
1. Precontemplation ($n = 25$)	8.1	14.16	68.49
2. Contemplation ($n = 32$)	−27.92	19.34	49.87
3. Action ($n = 67$)	−29.45	16.02	49.08
4. Maintenance ($n = 18$)	−40.88	6.49	43.16

Table 3
ANOVA With Scheffé's Post Hoc Test for ACBI Average Scores

Stage	Difference Between Means	Standard Error	*p*
1. Precontemplation			
2. Contemplation	36.02	5.47	<.01
3. Action	37.55	4.87	<.01
4. Maintenance	48.98	4.75	<.01
2. Contemplation			
1. Precontemplation	−36.02	5.47	<.01
3. Action	1.53	3.68	.99
4. Maintenance	12.96	3.51	.03
3. Action			
1. Precontemplation	−37.55	4.87	<.01
2. Contemplation	−1.53	3.68	.99
4. Maintenance	11.43	2.49	<.01
4. Maintenance			
1. Precontemplation	−48.98	4.74	<.01
2. Contemplation	−12.96	3.51	.03
3. Action	−11.43	2.49	<.01

Correlations Between Inventories

Of all of the coefficients calculated between ACBI and URICA, the highest one corresponds to the correlation between ACBI total score and URICA's Precontemplation scale ($r = .69$, $p < .01$; see Table 4). This positive correlation could indicate an association between lack of problem recognition in the precontemplative stage and a high perception of control that impedes the acceptance of compulsive drug use. Accordingly, the ACBI subscales with the highest correlation coefficients with the Precontemplation scale are the ones that correspond to components 1 (Full Control; $r = .64$, $p < .01$) and 3 (Personal Differentiation and Risk Minimiza-

Table 4
Correlation Coefficients Between ACBI and URICA/CCQ-NOW

	URICA				CCQ-NOW
ACBI	Precontemplation	Contemplation	Action	Maintenance	Lack of Control
Total score	$r = .69$ $p < .01$	$r = -.62$ $p < .01$	$r = -.57$ $p < .01$	$r = -.66$ $p < .01$	$r = -.72$ $p < .01$

tion; $r = .67$, $p < .01$); this reinforces the aforementioned association. There is a statistically relevant inverse correlation between ACBI total score and the rest of URICA's scales (Contemplation: $r = -.62$, $p < .01$; Action: $r = -.57$, $p < .01$; Maintenance: $r = -.66$, $p < .01$). These results could suggest an association between problem behavior recognition and a decreasing perception of drug use control.

In addition, there is a significant and inverse correlation between ACBI total score and the CCQ-NOW factor Perceived Lack of Control Over Use ($r = -.72$, $p < .01$), which provides a concurrent validity criterion to ACBI as an instrument for measuring perception of effective control over drug use. The correlation is not greater than the value mentioned, possibly because not all of the ACBI items belong to the dimension concerning "full control" over present use, but some of the items also refer to control in the future.

ACBI Validity and Reliability

As mentioned above, the results show evidence that support the concurrent validity (see *Correlations Between Inventories*) and construct validity (see *Average Scores in ACBI*) of ACBI as an instrument for measuring perceived control over drug use. The reliability study was performed by evaluating Cronbach's α coefficient for internal consistency, which reached 0.94. With regard to the incremental validity of the ACBI, a hierarchical linear regression analysis shows that the model of control items is incrementally valid ($F = 5.42$, $df = 139$, $p < .05$). In fact, ACBI and CCQ-NOW scores explain 47% ($R^2 = 0.47$) and 40% ($R^2 = 0.40$) of the variance in URICA's Precontemplation scale scores, respectively, whereas both inventories together explain 52% ($R^2 = 0.52$) of the variance. Moreover, ACBI scores accounted for an additional 7% of unique variance in URICA's Precontemplation scale scores over and above the 40% of the variance explained by CCQ-NOW scores.

Discussion

The results obtained in this study suggest an association between the perceptions and expectancies of controlled drug use and the different stages in the process of change in addicted patients. In the studied sample, individuals in the precontemplative stage agreed with a high number of addictive beliefs related to controlled drug use. In contrast, individuals in the subsequent stages (Contemplation, Action, and Maintenance) agreed with a considerably lower number of addictive control beliefs. Congruently, statistically relevant correlations were found between perceived control and stages of change, revealing a positive association between agreement with addictive control beliefs and precontemplation. In contrast, there was an inverse association with the rest of the stages. We consider the results interesting enough to be replicated with a larger sample of cocaine-addicted patients, or even those addicted to other substances, so that results may be compared and the tendency observed in this sample may be confirmed.

Nevertheless, it is worth mentioning that the study presented here has some important limitations that future research should try to overcome. First, it was not possible to assess subjects in terms of locus of control, which could have offered greater information about their perceptions of control over drug use. A locus of control study may in turn benefit from the evaluation of the reinforcement value (Rotter, 1966) as a mediating variable in the consumption behavior. In addition, although this study did not aim at investigating the perceptions of control according to the different profiles or typologies that may be obtained from URICA's cluster analysis (Prochaska & DiClemente, 1992), it should be noted that it represents a topic of interest for future research lines. In addition, it would have been useful to assess the dependence severity in each case so as to study its relation to the perception of control. In any case, we consider that a study of such relation would in itself be relevant enough to be conducted in an independent way. Likewise, it was not possible to evaluate the relationship between the subjects' perception of control and their real control over their impulses, although this could also be studied separately. It should also be noted that those in the evaluated sample were experiencing different treatment systems, which may entail diverse positions with relation to the subjects' capacity to control their drug use as well as the recognition of their loss of control as part of their therapeutic processes. Given that the subjects could have been influenced by these external elements—instead of informing stable perceptions—it would be necessary to replicate this study among a population that is not undergoing a treatment.

Furthermore, it should be stated that the obtained results are coherent with the disease model or with the Twelve-Step program philosophy (Alcoholics Anonymous, Narcotics Anonymous, etc.). The latter proposes acceptance of lack of control over substance use as a first step in the recovery process (commonly expressed through the phrase "we admitted we were powerless" over alcohol or drugs). If passage to the contemplative stage—in which individuals make their first considerations of change—is characterized by a refusal of previously sustained addictive control beliefs, then it would make sense, from that perspective, to aim at compulsive drug use recognition and the rebuttal of control pretensions over drug use as a first step to initiate the process of change in the addictive behavior.

However, it must be remembered that although the therapeutic goal of abstinence may be more coherent with the abandon of addictive control beliefs, not all patients are willing to quit drugs completely (Miller & Rollnick, 1991). From the Harm Reduction perspective, the "lack of control" perception may constitute an

obstacle to the reduced consumption or moderate consumption objective, but this difficulty does not necessarily prove that aiming at alternatives to abstinence is worthless. In such cases, addressing "self-efficacy expectancies" (Bandura, 1977) in patients in Contemplation or Action phases, and the modification of negative expectancies concerning the ability to control drug use, would be inescapable specific goals toward the general reduction or moderation objective. Understandably, we believe that the possibility to find better therapeutic proposals arising from the different theoretical models will be greater as future studies focus on perceived drug use control and its relation with the different motivational stages of the process of change.

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