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Long-term outcomes of Acceptance and Commitment Therapy in drug-dependent female inmates: A randomized controlled trial

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KEYWORDS

Acceptance and commitment therapy;
Cognitive behavioral therapy;
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Experimental study

Abstract The general aim of this randomized controlled trial was to test the long-term efficacy of acceptance and commitment therapy (ACT) compared to a cognitive behavioural therapy (CBT) condition in the treatment of drug abuse. Participants were 37 polydrug incarcerated females assessed with Mini International Neuropsychiatric Interview, Addiction Severity Index-6, Anxiety Sensitivity Index (ASI) and Acceptance and Action Questionnaire II at pre, post, and at 6-, 12- and 18-months follow-ups. The mixed lineal model analyses showed reductions in drug abuse, ASI levels and avoidance repertoire in both conditions, without any differences between groups. However, the percentages of mental disorders were reduced only in ACT participants. At the 18-month follow-up, ACT was better than CBT in the maintaining of abstinence rates. This data support the incubation pattern showed in previous ACT studies. To conclude, the ACT intervention seems to be an adequate treatment option for addictive behaviours and co-occurring disorders in incarcerated women.

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PALABRAS CLAVE

Terapia de aceptación y compromiso;
Terapia cognitivo conductual;
Cárcel;
Abuso de drogas;
Estudio experimental

Resumen El objetivo de este estudio controlado y aleatorizado fue comprobar la eficacia a largo plazo de la terapia de aceptación y compromiso (ACT) comparada con un protocolo cognitivo conductual (TCC) en el tratamiento intrapenitenciario del abuso de sustancias. Treinta y siete mujeres policonsumidoras fueron evaluadas con la Mini International Neuropsychiatric Interview, el Addiction Severity Index, el Índice de Sensibilidad a la Ansiedad (ASI) y el Cuestionario de Aceptación y Acción II antes y después del tratamiento, y al cabo de 6, 12 y 18 meses de seguimiento. Los resultados obtenidos con el modelo lineal mixto mostraron que el consumo de drogas, los niveles de sensibilidad a la ansiedad y los repertorios de evitación se redujeron en ambos grupos, sin diferencias entre ellos. Sin embargo, los porcentajes de psicopatología asociada se fueron reduciendo únicamente en quienes recibieron ACT. Al cabo de 18 meses, ACT fue

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superior a TCC en el mantenimiento de los porcentajes de abstinencia, lo que viene a confirmar el patrón de incubación informado en estudios anteriores sobre ACT. En conclusión, ACT se postula como una intervención viable para el tratamiento intrapenitenciario del abuso de drogas y los trastornos asociados.

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Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) is the most representative therapy of the contextual therapies. ACT is philosophically based on functional contextualism and has his own model of psychopathology, the psychological inflexibility (Hayes, Levin, Plumb-Villardaga, Villatte, & Pistorello, 2013; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Psychological inflexibility is a “transdiagnostic” alternative to the established classification systems. The new proposal is radically different and consists in identifying the common processes that are at the root of the different disorders and proposing a unified concept of the psychopathological condition (Pérez-Álvarez, 2012b).

ACT tries to dismantle the inflexible repertoire that characterizes the experiential avoidance, that is, the tendency to avoid or escape from aversive private events such as thoughts, emotions, memories and bodily sensations (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). One of the main goals of ACT is to increase psychological flexibility, which refers to an individual's ability to connect with the present moment more fully as a conscious human being, and to change or persist in behavior that serves one's valued ends (Hayes et al., 2006). Furthermore, ACT proposes acceptance of the feared private events when the attempt to control them is counterproductive in the long-term. Summing up, there are two principles in ACT intervention: first, to promote values clarification; second, to promote a commitment to act as a way to engage in the valued ends in the presence of the feared private events.

Two major meta-analyses have examined the efficacy of ACT (Öst, 2008; Powers, Zum, & Emmelkamp, 2009). Specifically, Powers et al. (2009) suggested comparing ACT with empirically supported treatments for specific disorders before its application in routine clinical care. However, ACT is now recognized as “empirically supported” by the United States Substance Abuse and Mental Health Service Administration (SAMHSA, 2012), in its national registry of evidence-based programs and practices. Even more, similar to CBT, ACT has showed its efficacy in several mental disorders, i.e. anxiety disorders (Arch et al., 2012; Roemer & Orsillo, 2012), depression (Zettle, Rains, & Hayes, 2011), and personality disorder (Morton, Snowden, Gopold, & Guymer, 2012).

Currently, a certain degree of controversy remains about the empirical status of ACT in addictive behaviors. Few randomized controlled trials (RCT) have been published comparing ACT with other interventions: Twelve-step Facilitation, Pharmacotherapy, Cognitive Behavioral Therapy (CBT) and Counseling (Gifford et al., 2011; Hayes et al., 2004b; Smout et al., 2010; Stotts et al., 2012). The results are promising for ACT. In polysubstance-abusing opiate addicts, Hayes et al. (2004b) compared Methadone

Maintenance (MM) alone to MM in combination with Intensive Twelve-step Facilitation (ITSF) or ACT. The results suggested that both ACT and ITSF may add to the benefits of MM in the reduction of drug use. However, there were differential effects between ACT and ITSF in drug use outcomes at follow-up. The ACT participants showed lower rates of drug use compared to the MM participants. In smoking cessation, Gifford et al. (2011) have compared ACT with a pharmacological treatment. In general, there were no differences between conditions at post-treatment; however, ACT participants had better long-term smoking outcomes at the 1-year follow-up.

Lastly, in methamphetamine abuse, Smout et al. (2010) randomized 104 treatment-seeking adults to receive ACT or CBT. There were no significant group differences in treatment attendance and methamphetamine-related outcomes. Methamphetamine use, negative consequences, and dependence severity significantly improved over time in both groups. However, serious methodological problems limit the conclusions of this study. Attrition was unacceptably high (70% at 12 weeks and 86% at 24 weeks post-entry), leaving the study underpowered to detect true differences (Smout, Hayes, Atkins, Klausen, & Duguid, 2012).

However, the comparison of ACT and CBT is just beginning (Hofmann, Sawyer, & Fang, 2010). The CBT treatment usually focuses on reducing symptoms modifying troublesome thoughts and maladaptive behaviors. However, not all clients may obtain improvements following CBT (Clarke, Kingston, Wilson, Bolderston, & Remington, 2012). In fact, Magill & Ray (2009) have documented a progressive loss of the therapeutic gains from the 6- to 12- month follow-up in the treatment of addictive behaviors with CBT. Contrarily, two studies have found a longer-term effect of ACT compared to CBT. This “incubation pattern” (Clarke et al., 2012) was observed since the 6-month follow-up, i.e. in smoking cessation (Hernández-López, Luciano, Bricker, Roales-Nieto, & Montesinos, 2009); in personality disorders (Clarke et al., 2012), and in drug abuse (Gifford et al., 2011; Hayes et al., 2004b).

More controlled studies are needed to determine whether the long-term ACT efficacy is comparable to established treatments. This RCT includes three follow-up assessments: at 6-, 12-, and 18-months. Despite the empirical evidence that support ACT, it has not been applied in the penitentiary context neither in a women sample.

The objective of this RCT in incarcerated females with substance abuse and co-occurring disorders was to determine the long-term effectiveness of ACT, using a CBT program as comparison group. The study is an extension of an earlier report of post-treatment and 6-month follow-up outcomes (Villagrà, Fernández, Rodríguez, & González-Menéndez, in press). Our hypothesis is that both treatments

will reduce drug abuse and maintain it. Also, both conditions will improve participants' mental health. The second hypothesis is that ACT will achieve better results than CBT over time.

This study was prepared according to considerations of Hartley (2012).

Method

Participants

Participants were 37 female inmates from a state prison (Villabona, Spain) diagnosed with current abuse or dependence according to the Mini International Psychiatric Interview (Spanish version by Ferrando et al., 2000). The participants were between 22 and 49 years of age ($M = 33.59$, $SD = 7.5$). In general terms, they were mostly single and were incarcerated by a drug related crime. The sentences ranged from 38.7 to 50 months in average. Participants were excluded if they were abstinent at the beginning of the study. The global frequencies of consumption were 40.5% twice a month, 10.8% twice a week, 18.9% four days a week, and 29.7% daily (Addiction Severity Index-6).

Worthy of consideration was the legal situation of the participants. Pre and post-treatment assessments were performed in prison. However, from the ACT group, 23.1%, 33.3% and 38.5% (6-, 12- and 18-month follow up, respectively) were released from prison. From the CBT group, 18.8%, 45.5% and 50% (6-, 12- and 18-month follow up, respectively) were released from prison. In such cases, the assessments were conducted after their release.

Instruments

- Ad hoc interview. We developed a semi-structured interview to collect relevant data such as the history of previous treatments for drug abuse, current family situation, and past criminal history.
- Addiction Severity Index-6 (ASI-6; McLellan, Luborsky, Woody, & O'Brien, 1980). This is a structured interview (257 items) that measures patterns of drug use and lifetime and recent severity problems in seven areas (medical, employment, alcohol and drugs, legal, family, and psychiatric). In each of these areas, items are combined into a composite score (CS) ranging from 0 (*no significant problem*) to 1 (*extreme problem*). The Spanish version was used (Bobes et al., 2007). The levels of internal consistency ranged between .47 and .95, and test-retest reliability ranged between .36 and 1. The legal area was not included.
- Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1992). This consists of 16 items, which are rated on a Likert-type rating scale ranging from 0 (*never*) to 4 (*always*). In addition to the total score, there are three subscales: *Somatic*, *Cognitive* and *Social*. The Spanish version was used (Sandín, Chorot, Valiente, Santed, & Lostao, 2004). The Cronbach alpha coefficients are .84 (Total), .83 (Somatic), .77 (Cognitive) and .50 (Social). The test has acceptable psychometric properties in clinical population and adequate factor consistency.

- Acceptance and Action Questionnaire-II (AAQ-II; Hayes et al., 2004a). This scale assesses experiential avoidance and psychological acceptance, two key aspects of ACT. It has 10 items that are rated on a Likert-type scale ranging from 1 (*never*) to 7 (*always*). Higher scores indicate greater psychological flexibility. The Spanish version was used (Barraca, 2004). The internal consistency index is .70.
- Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). This is a brief structured diagnostic interview that explores the principal Axis I psychiatric disorders of the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000). The MINI is divided into modules identified by letters; each one corresponds to a diagnostic category. The Spanish version was used (Ferrando et al., 2000). MINI has acceptable validity (.70) and reliability (.75).
- Multidrug Urinalysis (UA). This is a drug reactive test to control drug use. UAs were obtained at random from all participants. Specimens were collected in the presence of a prison guard to avoid urine substitution and to ensure authenticity. Participants had their urine screened for polydrug use (opiates, cocaine, cannabis and amphetamines).

Procedure

The data were collected between 2010 and 2012. All study procedures were reviewed and approved by the management team of the prison. The participants provided a written informed consent prior to being interviewed. All the information handled in the assessments and interventions was confidential. Randomization was implemented at prison using a random numbers table prior to the participants' transfer to the treatment programs (Figure 1). Assessment was carried out individually in the medical office and lasted 90 minutes/each inmate. Assessment was carried out by two psychologists in charge of administrating the interventions and measures and who were supervised by a Ph.D.-level researcher. The psychologists had specific training in the methodology and the instruments used in this study. The CBT therapist was a professional in clinical psychology. She has a wide career (at least 15 years) in the treatment of many psychological disorders in adults, included substance abuse in prison. The ACT therapist was a PhD-level student. She had attended several specialist ACT training workshops during the previous three years. Every week, the team had meetings to discuss the procedure and the progress of the treatments. The interventions were conducted simultaneously and both followed a treatment protocol, consisting of 16 weekly group sessions lasting 90 minutes. Both psychologists carried out the follow-ups assessments in their respective treatment group.

The protocols were developed for the application to substance abuse disorder (Tables 1 and 2).

- Acceptance and Commitment Therapy: The general clinical goals of ACT are to undermine the grip of the literal verbal content of cognition that provokes avoidance behavior and to construct an alternative context in which behavior aligned with one's values is

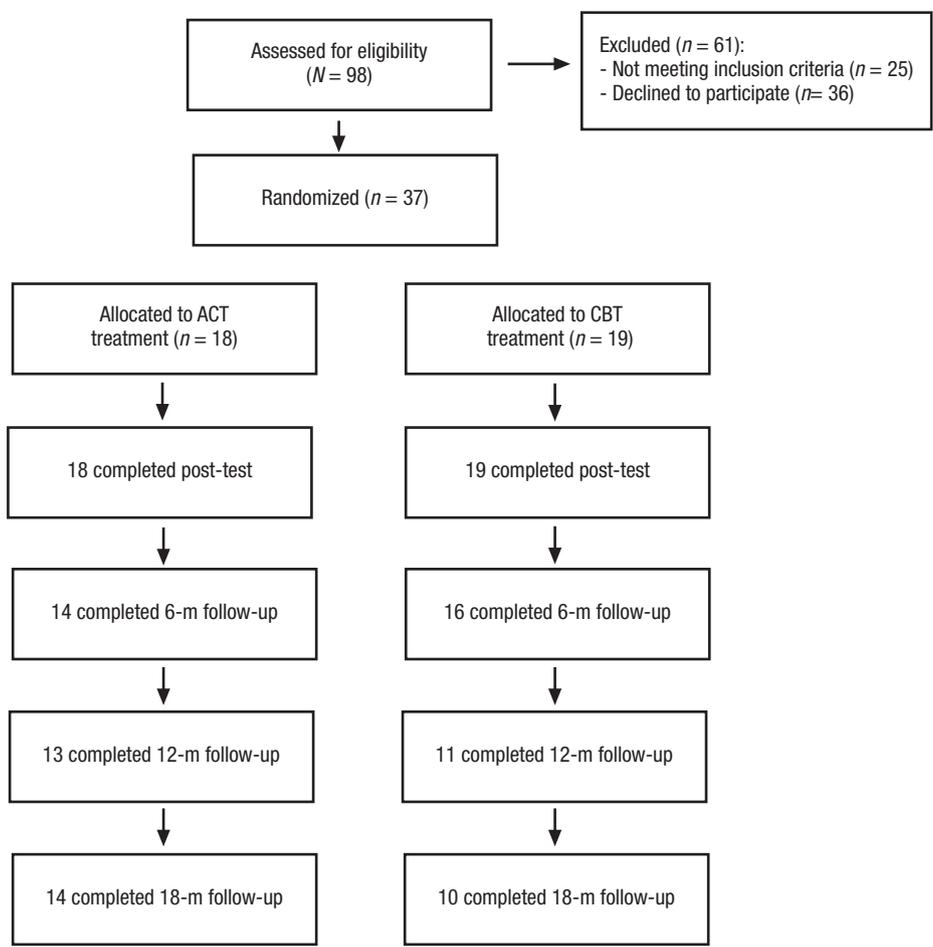


Figure 1 Participant flowchart.

Note. ACT = acceptance and commitment therapy; CBT = cognitive behavioural therapy.

Table 1 The acceptance and commitment therapy protocol.

1. Building the Therapeutic contract
2. Functional analysis
3. Creative hopelessness. Metaphors: "The man in the hole" and "The farmer and the donkey"
4. Values clarification
5. Building a commitment. Exercise: "The funeral" Metaphor: "Eat the whole apple"
6. Control as the problem. "The rule of 95-5%"
7. Control as the problem. Exercises: "Pink elephants" and "What is the name of your mother?"
8. The alternative to control. Be willing as a possibility
9. Acceptance exercises. Exercise: "Eyes on"
10. Cognitive defusion. Exercises: "The ride with posters", "milk, milk, milk"
11. Establishing language conventions. "I'm having the thought that I'm failure" instead of saying "I'm a failure"
12. Self as context. Metaphor: "Chessboard"
13. Screening for barriers and strengthening values. Metaphors: "The journey" and "Welcome to all and the rude"
14. Acceptance and Commitment. Fear of commitment. Metaphor: "You know driving"
15. Remember session. Internal dialogue: "This isn't working, it's always the same, I thought it was OK, but it isn't....
Metaphor: "The rider"
16. Remember session

more likely to occur. All sessions involved both experiential and didactic learning, designed to enable clients both to experience and understand the impact of the six key processes outlined in the ACT model of psychopathology

(to identify ineffective strategies, control is the problem, cognitive defusion, acceptance and willingness, values and commitment). ACT provides something different that the client can do with these previously avoided events,

Table 2 The cognitive-behavioural therapy protocol.

1. Functional analysis
2. To identify risk situations
3. Thoughts: To identify positive and negative thoughts
4. Thoughts: The importance of thoughts. Behavioral chains
5. Thoughts: Cognitive modification
6. Feelings: To identify the feelings of life
7. Feelings: How do you feel after consumption?
8. Feelings: Working with feelings (good feelings and bad feelings)
9. Decision matrix: The short and long-term results. Positive and negative consequences
10. Decision making: Impulsivity
11. Decision making: The integration of thoughts and feelings
12. Assertiveness. How to say no?
13. A new situation: What I Think? What I feel? What I do?
14. Relapse prevention
15. Relapse prevention: Futures risk situations
16. Emotional dependence: Marital risk factors

while moving directly and quickly towards the ultimate goal (e.g., establishing relationships). The bigger message thus is validating (“trust your experience”) and empowering (“you can live a powerful life from here, without first having to win a war with your own history”). In general, ACT relies on relatively nonlinear uses of language, as language processes themselves are thought to be the primary source of rigid and ineffective repertoires. Thus, ACT uses paradox, metaphors, stories, exercises, behavioral tasks, and experiential processes.

- Cognitive Behavioral Therapy: CBT programs attempt to change clients’ unhealthy behavior through cognitive restructuring. The therapist works with the patient to identify the thoughts that are causing distress and employs cognitive and behavioral therapy techniques to alter the resulting behavior (e.g., to recognize behavioral chains, analyze drug abuse situations, identify negative emotional states, cognitive restructuring, practice alternative behaviors to drug use, and relapse prevention). Each session was structured in three sections: review of drug use, cravings and high-risk situations; skill instructions; and homework assignment and anticipation and development of a coping plan for high-risk situations.

Data analyses

We performed a descriptive study of some sociodemographic characteristics of the sample and the dependent variables of interest (means, standard deviations, and percentages according to the nature of the variables). ANOVAs and chi-square analysis were carried out to determine group differences. By means of the Kolmogorov-Smirnoff and Levene statistics, respectively, normality and homogeneity assumptions were determined.

The Cochran test (Q) was conducted to test tendencies in abstinence and in the presence of mental disorders. Tests

Table 3 Sociodemographic characteristics of enrolled participants.

Experimental condition	ACT	CBT	
Quantitative variable	<i>M (SD)</i>	<i>M (SD)</i>	<i>p</i>
Age	31.1 (6.4)	35.9 (7.9)	ns
Sentence (months)	50 (33.1)	38.7 (20.1)	ns
Mean age at onset of drug abuse	16.7 (5.7)	19.9 (9.4)	ns
Time of drug abuse (years)	7.9 (6.1)	11.3 (9.2)	ns
Qualitative variable	<i>n; %</i>	<i>n; %</i>	
Marital status			ns
Single	13; 72.2	9; 47.4	
Married	1; 5.6	2; 10.5	
Divorced	4; 22.2	7; 36.8	
Widowed		1; 5.3	
Crime			ns
Public health	5; 27.8	9; 50	
Property	9; 50	8; 44.4	
Violent	4; 22.2	1; 5.6	
Main substance			ns
Heroin	9; 50	11; 57.8	
Cocaine	5; 27.8	6; 31.6	
Cannabis	1; 5.6	1; 5.3	
Others (Alcohol, Psychotropics)	3; 16.6	1; 5.3	
Previous treatment	11; 61.1	14; 72.7	ns

Note. ACT = acceptance and commitment therapy; CBT = cognitive behavioural therapy; SD = standard deviation; ns = non significant. $\alpha = .05$; $p < .05$.

of the effects of psychotherapy conditions on primary outcomes were analyzed using a linear mixed effect model with BIC adjustment and AIC criteria (Compound symmetry [SC], Autoregressive [AR(1)], Autoregressive-heterogeneity [ARH(1)], and No structured (NS) with SPSS to estimate the missing 35% of the longitudinal data. Intent-to-treat analyses using separate models for each primary outcome variable were tested, with therapy, time, and the interaction between therapy and time fitted as main effects and a random effect to account for correlations due to repeated measurements. Data analysis was performed with the SPSS statistical package (V.19.0) and a 5% a priori Type I error.

Results

Table 3 displays the sociodemographic characteristics for all participants. There were no significant differences between CBT- and ACT-assigned participants on baseline measures.

All participants completed the post-treatment assessment. At 6-month, 77.8% participants of ACT and 84.2% of CBT completed the assessment. At 12-month, 72.2% participants of ACT and 57.9% of CBT were assessed, and 77.8% participants of ACT and 52.6% of CBT completed the 18-month follow-up assessment. In all, 66.7% ACT and 47.4% CBT participants completed all the assessments (Figure 1).

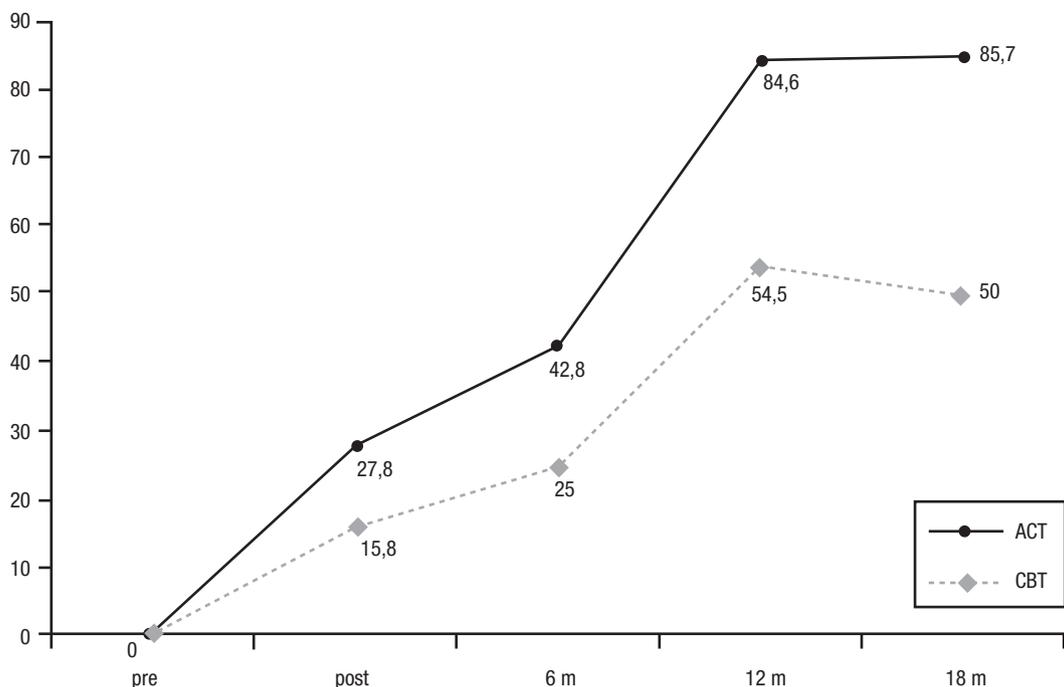


Figure 2 Percentage of abstinence.

Note. ACT = acceptance and commitment therapy; CBT = cognitive behavioural therapy.

No group differences were found in the percentages of participants who completed the assessments ($\chi^2_{(1, N = 37)} = 1.403, p = .236$).

The first goal of this study was to compare drug outcomes after treatments and over time. The percentages of abstinence are expressed in terms of the participants' self-reported data and corroborated by UAs (Figure 2).

The percentages of abstinence registered in ACT were: 27.8% at post-treatment, 42.8% at 6-month, 84.6% at 12-month and 85.7% at 18-month. The percentages of abstinence registered in CBT were: 15.8% at post-treatment, 25% at 6-month, 54.5% at 12-month and 50% at 18-month. The increasing trend shown in ACT was statistically significant, ($Q3 = 15.343, p = .002$). CBT also showed a statistically significant increment, ($Q3 = 8.053, p = .045$). At 18-month, a statistically significant difference was found in favor of ACT ($\chi^2_{(1, 24)} = 3.6, p = .05$).

Table 4 and Table 5 present the means and standard deviations for all outcome variables and the results of the mixed effects model tests. No therapy x time interaction was significant for any measure. However, a significant therapy effect was found in both groups:

There was a significant therapy effect favoring ACT in three areas of the ASI-6. Post hoc comparisons revealed statistically significant within-group reductions in Drug, from baseline to 6-, 12- and 18-months, ($F_{(4, 38.1)} = 10, p = .000$); Psychological, from baseline to 18-months, ($F_{(4, 112.06)} = 2.55, p = .043$); and Family, from baseline to 12- and 18-months, ($F_{(4, 57.2)} = 4.21, p = .005$).

Both groups showed significant reductions in ASI; however CBT improved more than ACT. Post hoc comparisons revealed a statistical significance for CBT in the following scales:

Total, from baseline to post, 12-, and 18-months, ($F_{(4, 69.2)} = 3.64, p = .009$); Somatic, from baseline to post and 18-months, ($F_{(4, 105.2)} = 3.22, p = .015$); and Cognitive from baseline to post, 12-, and 18-months, ($F_{(4, 70.2)} = 6.95, p = .000$). A statistical significance was found for ACT in Cognitive from baseline to 18-months, ($F_{(4, 70.2)} = 6.95, p = .000$).

In AAQ-II, both groups showed a statistically significant therapy effect, ($F_{(4, 110.4)} = 8.05, p = .000$), but without significant group differences. ACT improved from baseline to post, 6-, 12-, and 18-months, and CBT improved from baseline to post.

General analysis of participants' initial psychopathological status showed that the vast majority of females had other mental disorders different than drug abuse. The most frequent mental disorders were: major depressive disorder (56.8%), generalized anxiety disorder (37.8%) and panic disorder (32.4%). After the interventions, general decreases were recorded in both groups throughout the follow-ups in the percentages of associated psychopathology. Chi square analysis found no significant group differences, but ACT showed significant tendencies in anxiety disorders (Table 6).

Discussion

The present study was designed to test the long-term efficacy of ACT for the treatment of drug abuse in incarcerated females and to compare it with a CBT condition.

With regard to abstinence, both ACT and CBT interventions were efficacious. However, at the 18-month

Table 4 Comparisons over time in Addiction Severity Index-6 outcome measures.

Dependent variable	ACT	CBT	Group x Time Interaction test
	<i>M (SD)</i>	<i>M (SD)</i>	
	pre	pre	
	post	post	
	6-m	6-m	
	12-m	12-m	
	18-m	18-m	
Drug	.47 (.4)	.46 (.59)	$F_{AR(H)}(4, 38.1) = 1.54, p = .209$
	.46 (.2)	.43 (.47)	
	.40 (.5)	.41 (.70)	
	.38 (.59)	.40 (.85)	
Alcohol	.36 (.58)	.40 (.76)	$F_{AR}(4, 103.7) = 2.33, p = .061$
	.39 (.3)	.42 (.51)	
	.38 (.4)	.41 (.56)	
	.38 (.16)	.41 (.53)	
	.38 (.33)	.40 (.42)	
	.38 (.23)	.45 (.68)	
Psychological	.48 (.4)	.47 (.6)	$F_{SC}(4, 112.06) = 1.96, p = .105$
	.47 (.6)	.42 (.84)	
	.45 (.59)	.47 (.87)	
	.44 (.6)	.44 (.57)	
Physical	.41 (.6)	.44 (.63)	$F_{SC}(4, 111.02) = .418, p = .795$
	.48 (.6)	.45 (.10)	
	.46 (.7)	.43 (.84)	
	.43 (.88)	.43 (.10)	
	.43 (.94)	.42 (.69)	
	.41 (.11)	.40 (.55)	
Family	.45 (.6)	.41 (.65)	$F_{AR(H)}(4, 57.2) = 1.81, p = .138$
	.44 (.9)	.44 (.66)	
	.39 (.55)	.41 (.6)	
	.38 (.57)	.38 (.43)	
	.38 (.34)	.41 (.56)	

Note. ACT = acceptance and commitment therapy; CBT = cognitive behavioural therapy; *SD* = standard deviation. $\alpha = .05$; Group x Time interaction tested by mixed lineal model, * $p < .05$. Compound symmetry (SC), Autoregressive (AR [1]).

follow up, ACT showed greater results than CBT in abstinence rates.

The reductions observed in drug abuse were corroborated in some of the ASI-6 measures, such as drugs, psychological and family areas. This result underlines the efficacy of contextual therapies like ACT in the treatment of addictive behaviors. To date, there are very few studies comparing CBT and ACT programs in addictive disorders. Only two methodologically disparate works analyzed this topic, reporting contradictory results. Using a quasi-experimental design, Hernández-López et al. (2009) indicated that ACT improved the long-term percentages of abstinence obtained by tobacco consumers after a CBT program (48.1% vs. 17.2 %, ACT and CBT, respectively). In contrast, in a RCT, Smout et al. (2010) reported no differences in the efficacy of both interventions for meta-amphetamine consumers. The study presented herein adds a new datum to the studies that compare the treatments, underlining the use of ACT as a therapeutic alternative that is feasible for incarcerated female drug addicts.

The scores on anxiety sensitivity and acceptance differently as a function of the treatment received. In CBT group, reductions were observed in the levels of anxiety sensitivity at post-treatment and at 12- and 18-month follow-up. Contrarily, people who received ACT only presented decreases in the ASI cognitive subscale at 18-month follow-up. In our opinion, the explanation for these discrepant findings might be explored in the context that promoted lower anxiety levels. In fact, at 12- and 18-month follow-up, 45.5% and 50% of the CBT participants were released from prison (versus 33.3% and 38.5% in ACT group). Probably, the sensitivity anxiety levels decreased as a consequence of the participants' new situation, that is, the return to usual social environment.

On the other hand, people who received ACT only presented decreases in the cognitive subscale at 18-months. In any event, the decreases observed in this cognitive area of anxiety sensitivity would prove that the specific dimensions of the scale (i.e., thoughts about consumption) could play a role in the emergence of other problematic

Table 5 Comparisons over time in Anxiety Sensitivity Index and Acceptance and Action Questionnaire-II outcome measures.

	ACT	CBT	
Dependent variable	<i>M (SD)</i>	<i>M (SD)</i>	Group x Time Interaction test
	pre	pre	
	post	post	
	6-m	6-m	
	12-m	12-m	
	18-m	18-m	
ASI Total	21.11 (14.8)	31.2 (17.4)	$F_{AR}(4, 69.2) = 2.059, p = .096$
	21.11 (14.8)	18.1 (13.7)	
	16.3 (12.8)	21.8 (18.9)	
	15.2 (12.9)	16.1 (9.8)	
	14.3 (12.6)	12.7 (8.3)	
ASI Somatic	9.4 (8)	12.8 (7.5)	$F_{AR}(4, 105.2) = 1.95, p = .107$
	9.17 (7.8)	7.32 (7.4)	
	7.5 (7.2)	9.75 (8.8)	
	6.7 (7.7)	7 (5.7)	
	6.4 (7.2)	4.5 (4.2)	
ASI Cognitive	8.22 (6.2)	9.74 (7.21)	$F_{AR(H)}(4, 70.2) = .984, p = .422$
	5.61 (5.38)	4.47 (5.42)	
	4.36 (4.63)	5.88 (6.77)	
	4 (3.72)	3.82 (3.8)	
	2.71 (3.7)	2.8 (2.93)	
ASI Social	5.33 (3.86)	8.68 (4.4)	$F_{AR(H)}(4, 52.8) = 1.46, p = .225$
	6.33 (3.8)	6.26 (3.7)	
	6.79 (7.42)	6.25 (4.8)	
	4.46 (2.6)	5.27 (2.7)	
	5.21 (3.37)	5.4 (3.6)	
AAQ-II	33.33 (17.31)	33.26 (13.2)	$F_{SC}(4, 110.4) = .88, p = .478$
	47.61 (13.37)	45.26 (17.8)	
	53.71 (12.5)	42 (17.9)	
	51 (11)	45.82 (14.6)	
	49.21 (18)	46 (15.6)	

Note. ACT = acceptance and commitment therapy; CBT = cognitive behavioural therapy; SD = standard deviation; ASI = Anxiety sensitivity index; AAQ-II = Acceptance and action questionnaire. $\alpha = .05$. Group x Time interaction tested by mixed lineal model, $*p < .05$. Compound symmetry (SC), Autoregressive (AR [1]), Autoregressive -heterogeneity- (ARH [1]).

Table 6 Mental disorders others than drug abuse (MINI).

	Pre (%)	Post (%)	6-m (%)	12-m (%)	18-m (%)	Q1
ACT	77.8	61.1	42.9	38.5	21.4	PD [10.15(4); $p = .038$]
<i>n</i> = 12						GAD [9.86(4); $p = .043$]
CBT	73.7	57.9	50	18.2	50	
<i>n</i> = 9						

Note. ACT = acceptance and commitment therapy; CBT = cognitive behavioral therapy; PD = panic disorder; GAD = generalized anxiety disorder. $\alpha = .05$. Q^1 = Cochran statistic (*df*); $*p < .05$.

behaviors (Berman, Wheaton, McGrath, & Abramowitz, 2010; Kämpfe et al., 2012). Such would be the case of experiential avoidance. We similarly interpret the results referring to acceptance of distress. Levels of acceptance increased across all the assessments only in the ACT group,

suggesting that the participants learned to distance themselves from the unpleasant effects of abstinence and they expanded their behavioral repertory.

According to the predictions of ACT, the reductions observed in experiential avoidance would also improve

psychological well-being. At 6-months, of the initial 77.8% of the participants who met the DSM-IV-TR criteria for the disorders assessed, only 42.9% still had the same status. At the 18-month, only 21.4% from ACT presented associated mental disorders. Then, experiential avoidance would be the process underlying a broad range of topographically dissimilar disorders (Clarke et al., 2012). In the context of psychological problems and as an alternative to hiperreflexivity (Pérez-Álvarez, 2012a), ACT proposes psychological acceptance, clarifying values and commitment with the action. The work carried out in the sessions, mainly based on the clarification of these values and on defusion cognitive tasks, promoted psychological flexibility and hence, had a large impact on the participants' dual diagnostic profile. After all, ACT is a treatment focused in general therapeutic principles more than in specific techniques. As well as providing a transdiagnostic alternative, ACT attempt to refute the fallacy which consists on thinking that, in Psychology, each "unbalanced behavior" must be treated with a specific technique.

On the other hand, reports about the prior treatments received revealed that a large percentage of participants (ACT: 61.1%; CBT: 73.7%) had undergone detoxification programs before entering prison. Generally, these programs were conducted in therapeutic communities with a CBT orientation. Previous studies have shown that people with multiple therapeutic failures do not always manage to benefit from CBT treatment. This has been documented in patients with generalized anxiety disorder (Borkovec, Newman, Pincus, & Lytle, 2002) and major depressive disorder (Dimidjian et al., 2006). In contrast, the fact that the reductions in key measures were maintained or even emerged at long-term, replicates the incubation pattern reported in other studies of ACT (Clarke et al., 2012; Gifford et al., 2011; Hayes et al., 2004b).

Therefore, one of the first conclusions we can reach from our study is that, in incarcerated women, ACT can now play a role in the treatment of drug abuse and co-occurring disorders. The therapies were programmed and the differential therapeutic relationships were built taking into account this environment, which was the same for all the participants. The penitentiary context is a rigid and inflexible environment with its own rules and values. This setting was the ideal scenario to test both interventions. Focusing on personal values, the main goal in ACT was to resettle the participants in their unavoidable circumstances (including the prison context itself), and to promote their acceptance. It was during this process that the participants proposed themselves to cease consumption only as a necessary step. This is the strength of ACT. ACT is about change and acceptance at the same time (Eifert & Forsyth, 2005). In contrast to ACT, the CBT protocol focuses on learning behavioral chains that predispose one to consumption, on treating negative moods that act as triggers, and on relapse prevention. However, the consolidation of these learning seems a difficult task if the therapies don't re-contextualize the observed problem. A way to do it could be encouraging the work in valued actions, reinforcing behaviors-congruent living and minimizing the therapist-patient hierarchy. In the prison setting, perhaps this kind of protocol could benefit from including defusing tasks. These disentanglement cognitive

tasks can help clients to maintain the healthy behaviors learned, even in the presence of the barrier of the prison.

These results were obtained independently of a large number of circumstances that initially seemed to predict failure. Among others, participants' chronicity and polyconsumption; loss of subjects due to transfer to other penitentiaries; some methodological problems (small sample, lack of a therapists' adherence measure). In fact, due to the small sample size, more research is needed to clarify whether the results obtained are only applicable to the studied population, the setting in which treatments were administered, or the design and execution of both programs.

Concluding, we can state that the hypotheses of the study were confirmed. Both groups reduced their drug use, anxiety sensitivity, and the composite score of the ASI-6, and they increased their psychological flexibility. On the other hand, as expected, the ACT condition maintained the improvements obtained at the long-term compared with the CBT condition, which was more irregular in maintaining the gains observed. Hence, ACT seems an adequate treatment option for addictions and co-occurring disorders of incarcerated females. Future research could consider including some ACT components in CBT protocols in order to corroborate these results.

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