Behavioral Psychology / Psicología Conductual, Vol. 32, No. 2, 2024, pp. 233-247
https://doi.org/10.51668/bp.8324201n

THE TREATMENT OF DRUG ABUSE IN JUVENILE OFFENDERS: AN ANALYSIS IN THE SPANISH POPULATION

Álvaro Fernández Moreno[1], Natalia Redondo Rodríguez[2], and José Luis Graña Gómez[3]
[1]Francisco de Vitoria University; [2]Autonomous University of Madrid; [3]Complutense University of Madrid (Spain)

Abstract

The main objective of this study was to evaluate the variables influencing the efficacy of different approaches to addressing the problem of drug use among juvenile offenders. A longitudinal study was conducted with 79 adolescent internees at the Teresa de Calcuta CEMJ (*Centro de Ejecución de Medidas Judiciales*) in Madrid. Therapeutic interventions were conducted with adolescents with severe drug-related problems. For data analysis, binary logistic regression analysis was used. Therapeutic success after a three-month follow-up period was 53.2%. The regression analysis correctly classified 86.1% of the cases, effectively predicting 85.7% of therapeutic success and 86.5% of therapeutic failure. The analysis identified 4 predictive factors: the number of criminal charges resulting in internment, number of minor infractions committed during detention, prior consumption of ecstasy and risk factors in personality and/or behavioural issues. The results suggest that judicial and therapeutic interventions should be based on the chronicity of delinquency and other individual personality traits. KEY WORDS: *therapeutic success, therapeutic failure, drug abuse, serious offences, adolescents.*

Resumen

El objetivo del presente estudio es identificar las variables implicadas en el éxito terapéutico en el tratamiento de los problemas asociados al consumo de drogas en menores infractores. Se realizó un estudio longitudinal con 79 adolescentes internos en un Centro de Ejecución de Medidas Judiciales español con problemas graves derivados del consumo de drogas y que realizaron una intervención terapéutica para paliarlos. Para el análisis de los datos se realizó una regresión logística binaria. El porcentaje de éxito terapéutico tras 3 meses de la finalización del internamiento fue del 53,2%. El modelo de regresión clasificó correctamente el 86,1% de los casos, pronosticando de manera adecuada el 85,7% del éxito y el 86,5% del fracaso terapéutico, identificándose cuatro variables predictoras: número de expedientes judiciales que justifican el ingreso,

The authors would like to express their thanks to the personnel of the CEMJ Teresa de Calcuta operated by the GINSO Association for making this research project possible, and Jesús Rodríguez Barroso for his support during the writing of this article.

Correspondence: Álvaro Fernández Moreno, Carretera M-515 de Pozuelo a Majadahonda, Km. 1,800, 28223 Pozuelo de Alarcón, Madrid (Spain). E-mail: alvaro.fernandezmor@ufv.es

número de sanciones leves durante el internamiento, consumo problemático previo de éxtasis y riesgo en personalidad y conducta. Los resultados sugieren que es preciso orientar tanto las medidas judiciales como las intervenciones terapéuticas en función de la cronificación de la conducta delictiva y diversos factores de personalidad.
PALABRAS CLAVE: *crímenes graves, consumo de drogas, éxito terapéutico, fracaso terapéutico, adolescentes.*

Introduction

The scientific community has shown a particular interest in determining the causes of antisocial behaviour among adolescents and numerous studies have been conducted to determine the risk factors in the initiation and persistence of antisocial behaviour (Bonta & Andrews, 2017). In the majority of cases, antisocial behaviour originates in the dynamic interaction of a multitude of factors (Barnert et al., 2021). Among these factors, drug abuse is the most salient (Aebi et al., 2021; Hiller et al., 2021) given the prevalence of drug abuse and addiction among adolescents who have committed serious crimes (Pérez & Ruiz, 2017). Furthermore, it has been found that drug abuse is more common among those whose antisocial or criminal behaviour begins at a young age and is prolonged over time (Brislin et al., 2021).

The powerful association between these two factors has led to the development of a multitude of intervention plans and programs which aim to address jointly the issues of antisocial behaviour and drug abuse. The theoretical paradigms of intervention programs which have proven most effective in addressing these problems are systemic therapy, multidimensional family therapy, cognitive-behavioural therapy and motivational interviewing (Dopp et al., 2017; Tripodi et al., 2010; Tripodi & Bender, 2011). Although these studies have all contributed to a greater understanding of this issue, a great deal of research remains to be done, for example, an in-depth analysis of the effectiveness of different intervention models (Ali et al., 2022; Ledgerwood & Cunningham, 2019). Equally, no intervention model has been identified that has proven more effective than others in treating drug abuse among adolescent offenders (Hiller et al., 2021; Tanner-Smith et al., 2016).

Recent studies have underscored the need to evaluate not only the effectiveness of intervention plans but also to explore more fully the factors which appear to determine the success or failure of those programs which have generally proven effective (Davis et al., 2016). In this way, predictive factors of therapeutic failure among offenders with severe drug abuse can be identified; these may include antisocial personality disorder, reduced self-control, instances of early poly-victimisation, symptomologies of anxiety, etc. (Wojciechowski, 2021; Wojciechowski, 2020). Among non-offending adolescents, one factor that has proven to be a predictor of therapeutic success is favourable progress in behavioural disorders, while predictors of therapeutic failure are the consumption of methamphetamines prior to treatment and belonging to a single parent household (You et al., 2020).

Among the Spanish population there is also a clear association between juvenile delinquency and severe drug abuse (Contreras et al., 2012; San Juan et al., 2009). Lawmakers have shown their awareness of this social reality in Organic Law 5/2000, January 12, regulating the criminal responsibility of minors and judicial measures to address juvenile crime, which establishes the need for effective drug treatment programs (Bujosa Vadell et al., 2021). For decades, the Juvenile Courts in Spain have applied therapeutic measures to address drug abuse among young people, either in semi-open regimes or in internment, in response to indicators which show that drug abuse is a significant factor in antisocial behaviour (Uceda-Maza et al., 2016; Vega-Cauich & Zumárraga-García, 2019). Although there are numerous intervention programs available to address drug abuse and addiction among young offenders, only one study by Fernández-Moreno et al. (2024a) has been published which evaluates the effectiveness of these programs among the Spanish population. This study developed a drug treatment program for adolescent offenders with persistent high levels of drug abuse and found that the adaptation of cognitive-behavioural techniques, using an orientation towards the future and applied through the prism of positive psychology, produced a statistically significant reduction in problems associated with drug abuse, with a high effect size, and proving more effective than individual cognitive-behavioural therapy conducted with the control group. This program is one of the few intervention models which address antisocial behaviour from the paradigm of positive psychology, despite the fact the evidence suggests it is an effective strategy in reducing criminal behaviour among young people (Riffo-Allende, 2021).

In light of the above, it is clearly necessary to explore further the factors which determine therapeutic success or failure among adolescents within the Spanish juvenile penal system. Identifying these factors will allow for the development of more effective intervention programs. The first objective of this research is to evaluate the relation between therapeutic success and criminal recidivism, with the expectation recidivism will be lower in cases where therapy has been considered successful. The second objective is to determine if internment can serve as an effective therapeutic measure; to do this we will evaluate the statistically significant differences in both static and dynamic variables before and after internment. Finally, a third objective, by using variety of measurement instruments is to identify the factors which are predictive of therapeutic success or failure.

Method

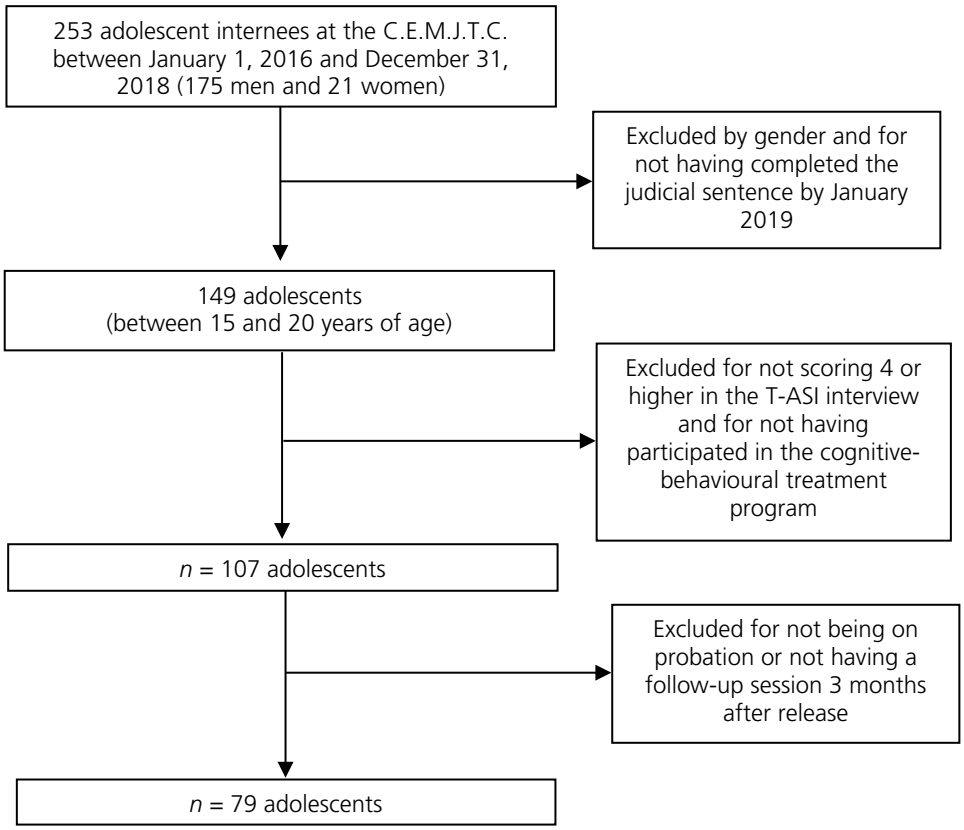
Participants

The study sample consisted of 79 adolescents (*M*= 16.78, *SD*= 1.23), all of whom were male and released from the Teresa de Calcuta CEMJ (*Centro de Ejecución de Medidas Judiciales*) after serving a custodial sentence in closed or semi-open regime. Four inclusion criteria were used in selecting the sample: having a severe drug addiction problem prior to internment according to the T-ASI test, having participated during internment in a cognitive-behavioural drug treatment

program, having completed a period of probation after internment and have successfully completed the first treatment follow-up interview with a probation officer.

Participation was entirely voluntary and no form of reward was offered for the inclusion of the subjects in treatment programs (Figure 1).

Figure 1
Flow chart of the sample selection process



Instruments

a) *Teen-Addiction Severity Index* (T-ASI; Kaminer et al., 1991). The T-ASI is a structured interview designed to collect relevant information on the development and maintenance of addiction among adolescents. The interviewer evaluates the degree of severity of addiction using 3 scales, one constructed based on the information provided by the patient, another based on the clinical opinion of the interviewer, and the other evaluating the validity

of the responses. The interviewer tests for problems in seven areas: prior consumption, problems in school, employment, family, social, psychiatric and legal.

The T-ASI has been translated into Spanish and the adapted version has been evaluated (Díaz et al., 2008), showing excellent validity. The reliability of the application of the T-ASI instrument in this present study was adequate, with a Cronbach's alpha of .79.

b) *Youth Level of Service/Case Management Inventory* (YLS/CMI; Hoge, 2005). This study made use of the Spanish adaptation of the YLS/CMI ("Inventario de Gestión e Intervención para Jóvenes", IGI-J; Garrido Genovés et al., 2017). The IGI-J consists of 42 items grouped into 8 risk/protection factors. The psychometric properties of the Spanish adaptation are considered adequate with a Cronbach's alpha of .90 (Garrido Genovés et al, 2017). The present study the instrument showed an adequate level of reliability, with a Cronbach's alpha of .72.

c) Consultation of Judicial Records. The case files and records of the participants were consulted to collect sociodemographic data and about recidivism during the 12-month follow-up period. Additional information included the participant's age at the time of sentencing, the type of crime committed, the length and type of sentence, level of education, family composition, violations of probation after release, number of minor and major sanctions imposed and nationality.

Procedure

All participants in the study were interned in the CEMJTC. The fundamental aim of this facility is to achieve the successful reinsertion of young offenders. An initial evaluation is conducted with each internee to identify deficits and potentialities and an intervention program is developed to adapt the adolescent to a regulated social environment. The activities generally centre around education, pre-employment and/or employment training, the development of personal and social competences, physical education and sports, socio-cultural and occupational education and recreation activities.

It is also considered especially important the circumstances of the adolescent in terms of the type of internment ordered by the juvenile courts. Thus, the CEMJTC has different therapeutic resources within the centre, such as the Mental Health Unit, Integral Development Program of Sexual Aggressors (DIAS Program) and the Drug abuse Treatment Program.

All of these activities are conducted with a careful balance between the necessary penal sanction and the goals of treatment, education and rehabilitation embedded within all judicial measures, promoting a personal change among young offenders and orienting them towards a normalised and positive model of life. This study used a longitudinal, non-randomised, repeated measures model. The participants were evaluated at the start of their internment using the T-ASI and IGI-J tools. The T-ASI interview was conducted by a psychologist responsible for treating drug addiction at the CEMJTC and the IGI-J questionnaire was applied

by the technical team of each participant: social worker, social educator and psychologist. During internment, new evaluations were conducted every three months using the IGI-J scale. The number of evaluations with the IGI-J varied depending on the length of internment period. Three months after release, further evaluations were made using the T-ASI and IGI-J in the first follow-up interview during the probation period. Successful participants were those who scored equal to or below 3 in the subscale of problems related to drug abuse in the T-ASI interview, with therapeutic success being classified with the value 0. On the contrary, cases where participants scored 4 or more in the same scale were considered therapeutic failure, this being classified with the value 1.

The databases of the Juvenile Courts and Correctional Institutions were consulted to determine rates of criminal recidivism. Recidivists were those participants who were charged with a new criminal offense within the first year after release. Participants were not classified as recidivist in the case of criminal proceedings based on offenses committed prior to their release from internment. Non-recidivism was classified with value 0 and recidivism was classified with the value 1.

Data analysis

The data was analysed using the SPSS 21.0 statistics package. Firstly, a descriptive analysis was conducted for the adequate characterisation of the sample using information collected through judicial records. To address the first objective of the study, to evaluate the relation between therapeutic success and criminal recidivism, Pearson's Chi-squared tests were made.

For the second research objective, to determine if internment can serve as an effective therapeutic measure, Student's t-test were conducted for samples related to all variables measured in the T-ASI and IGI-J tests.

Finally, for the third objective, to identify the factors which are predictive of therapeutic success or failure, a binary logistic regression model by blocks was used. The dependent variable was therapeutic success and independent variables were divided into four blocks: First block: drug abuse prior to internment a) consumption of ecstasy, b) consumption of alcohol, and c) consumption of cocaine; Second block: variables measured in the T-ASI interview: a) family problems, b) legal problems c) employment and/or support problems, and d) problems related to mental health; Third block: variables measured in the IGI-J interview: a) risk related to criminal behaviour, b) risk related to educational circumstances, c) risk related to personality variables, and g) risk related to attitudes and values; Forth block: behavioural variables identified through judicial records: a) number of criminal charges resulting in internment; b) number of minor sanctions.

Finally, it should be noted that all regression models met the assumptions for independence of errors and the absence of multicollinearity of the variables.

Results

All participants in the study were male, with a mean age at the start of internment of 16.78. Over half the participants were foreigners (54.4%), with a high prevalence of risk factors for drug abuse and antisocial behaviour. At the start of internment, according to the T-ASI interviews, some 88.6% (*n*= 70) of the sample suffered from severe drug abuse or addiction, 36.7% (*n*= 29) showed severe problems in their employment situation or support circumstances, some 67.1% (*n*= 53) suffered from serious family problems and 83.5% (*n*= 66) showed severe dysfunction in their network of social relations.

The majority of crimes committed by the participants resulting in internment involved violence and criminal damage (84,8%; *n*= 67). A large proportion of the sample had consolidated criminal behaviour prior to internment, demonstrated by the fact that 64.6% (*n*= 51) of participants had more than one criminal offense on their record prior to internment in the Centre and 27.8% (*n*= 22) had completed a judicial sentence prior to their current internment period.

The most commonly consumed substances by participants were cannabis and alcohol. 86.1% (*n*= 68) displayed compulsive consumption of cannabis and 63.3% (*n*= 50) had abusive alcohol consumption. Cocaine use was also very high with 20.3% (*n*= 16) of participants reporting abusive consumption habits, 12.7% (*n*= 10) occasional consumption and 21.5% (*n*= 17) experimental use.

To meet the first research objective an analysis was made of frequencies and percentages. After the 12-month follow-up period of the 79 participants 23 (29.1%) were recidivists while the remaining 56 participants (70.9%) did not have any new criminal charges. Regarding therapeutic success, three months after release, some 43 participants (53.2%) were successful and 37 (46.8%) were not. A significant relation was found between therapeutic success after internment and criminal recidivism, $\chi^2_{(1)}$= 9.55, *p*= .002) (Table 1).

Table 1
Relation between therapeutic success and criminal recidivism

Variables	Non-recidivist			Recidivist			$\chi^2_{(1)}$
	n	%	AR	*n*	%	AR	
Therapeutic success	36	45.6	3.1	6	7.6%	-3.1	9.55
Therapeutic failure	20	25.3	-3.1	17	21.5%	3.1	*p*= .002

Note: AR= adjusted residuals.

For the second objective, Student's t-tests were conducted for all the variables measured in the T-ASI and IGI-J tests. Statistically significant reductions were found between the pre- and post-treatment results in the variables of problems related to drug abuse, school, employment or support, family, social relations and mental health measured in the T-ASI interview (Table 2).

Similarly, statistically significant differences were found in scores before and after internment for the variables of total risk, risk related to criminal behaviour prior to internment, risk of drug abuse, risk related to educational circumstances,

risk related to recreation, risk in education and employment, risk in personality and behaviour, risk in peer relationships, and risk related to attitudes, beliefs and values measured in the IGI-J test (Table 3).

Table 2
Differences in mean T-ASI scores pre- and post-intervention

Problematic areas of the T-ASI	*M* (*SD*) pre (*n*= 79)	*M* (*SD*) post (*n*= 79)	*t*	Cohen's *d*
Problems of drug abuse	4.87 (0.37)	3.29 (1.51)	9.17*	1.03
School problems	4.59 (0.53)	3.02 (1.20)	12.1*	1.36
Support problems	3.30 (1.62)	2.46 (1.40)	5.86*	0.660
Family problems	4.65 (0.50)	3.27 (1.13)	11.6*	1.309
Social problems	4.83 (0.37)	3.37 (1.06)	12.6*	1.423
Legal problems	3.15 (0.45)	3.02 (0.75)	1.42	0.160
Mental health / problems	1.59 (1.11)	1.32 (0.72)	2.91*	0.327

Notes: T-ASI= Teen-Addiction Severity Index. *p< .01.

Table 3
Differences in mean IGI-J scores pre- and post-intervention

Risk/Protection Factors of the IGI-J	*M* (*SD*) pre (*n*= 79)	*M* (*SD*) post (*n*= 79)	*t*	Cohen's *d*
Total risk	27.3 (4.71)	19.0 (6.56)	10.1*	1.13
Criminal risk	1.69 (1.33)	2.60 (0.97)	-8.9*	-1.00
Drug abuse risk	2.88 (1.08)	1.51 (1.19)	8.93*	1.00
Educational risk	4.36 (1.09)	3.06 (1.50)	6.17*	0.69
Recreational risk	2.74 (0.56)	1.59 (1.03)	9.97*	1.12
Employment and support risk	4.13 (1.66)	1.54 (1.54)	9.99*	1.12
Personality and behaviour risk	4.41 (1.47)	2.98 (1.65)	6.67*	0.75
Peer relationships risk	3.68 (0.63)	3.32 (0.92)	2.75*	0.31
Attitudes and values risk	2.43 (1.17)	3.31 (1.18)	5.69*	0.64

Notes: IGI-J= "Inventario de Gestión e Intervención para Jóvenes" (the Spanish adaptation of the Youth Level of Service/Case Management Inventory). *p< .01.

Finally, for the third objective, a binary logistic regression model (by blocks) was used to determine if the variables, both static and dynamic, are predictors of criminal recidivism among participants. The regression model correctly classified 86.1% of cases, $\chi^2_{(14)}$= 45.81, p< .001, adequately predicting 85.7% of participants with therapeutic success and 86.5% of therapeutic failure. The R^2 *Nagelkerke* value is .588, indicating that 58.8% of the therapeutic success can be explained by the regression model (Table 4).

The 4 variables which significantly predicted therapeutic success after the three-month follow-up period were the number of criminal charges resulting in internment, level of prior consumption of ecstasy, the personality and behaviour subscale measured by the IGI-J and the number of minor sanctions imposed on participants over the course of internment.

Table 4
Regression models

Variables	*B*	Wald	Exp (*B*)	*p*	R^2	95% CI
Prior consumption					.107	
Ecstasy	1.15	5.92	3.17	.015		[1.25, 8.06]
Alcohol	-0.35	0.42	0.70	.514		[0.24, 2.02]
Cocaine	0.38	1.38	1.46	.238		[0.77, 2.73]
T-ASI					.300*	
Family problems	0.78	0.93	2.18	.333		[0.44, 10.60]
Legal problems	-1.57	2.60	0.20	.107		[0.03, 1.40]
Mental health problems	0.63	3.08	1.88	.079		[0.92, 3.83]
Employment problems	0.32	1.31	1.37	.252		[0.79, 2.38]
IGI-J					.347	
Criminal risk	0.38	1.14	1.46	.285		[0.72, 2.95]
Educational risk	0.39	1.11	1.47	.290		[0.71, 3.04]
Personality risk	-0.60	4.01	0.54	.045		[0.30, 0.98]
Education/employment risk	-0.44	3.39	0.63	.066		[0.39, 1.02]
Values/beliefs risk	0.30	0.77	1.35	.380		[0.68, 2.69]
Behavioural					.588**	
No. minor sanctions	0.73	5.39	2.08	.020		[1.12, 3.87]
No. criminal charges	0.13	9.19	1.14	.002		[1.04, 1.24]
Constant	-4.50	0.57	0.01	.450		

Notes: R^2= Nagelkerke R^2; T-ASI= Teen-Addiction Severity Index; IGI-J= "Inventario de Gestión e Intervención para Jóvenes" (the Spanish adaptation of the Youth Level of Service/Case Management Inventory). *p< .01; **p< .001.

Discussion

With regards to the first research objective, the rate of criminal recidivism after one year was 29.10%. This figure is similar to that found in other studies evaluating recidivism rates among Spanish minors committing serious crimes (Ortega-Campos et al., 2014). The rate of therapeutic success after the three-month follow-up period was 53.2%. This figure can be considered high given that interventions for drug abuse which have proven effective among non-offenders do not score as high among adolescent offenders (Tripodi & Bender, 2011). A positive relation was found between therapeutic success and reduced recidivism, in line with the findings of previous studies which affirm that drug treatment is a variable to be taken into consideration in intervention programs addressing antisocial behaviour (Ledgerwood & Cunningham, 2019).

Regarding the second research objective, a statistically significant reduction was found in the dynamic variables measured in the T-ASI interview and the IGI-J tool. This suggests that internment can be a relevant factor in the reduction of the risk of recidivism among the participants. Similarly, a recent study by Fernández-Moreno et al. (2024a) found that custodial sentences imposed in the Community of Madrid have proven effective in mitigating problems associated with drug abuse.

Having demonstrated the relevance of therapeutic success in addressing antisocial behaviour and the favourable progress of participants in the variables traditionally signalled as risk factors for criminal conduct (Barnert et al., 2021), we can turn to the third research objective, to identify the factors which are predictive of therapeutic success or failure. For this a regression model by blocks was used which included static and dynamic variables related to drug abuse, judicial variables, and adaptation to internment. The regression model was able to explain 58.8% of therapeutic success, correctly classifying 86.1% of cases.

However, only two of the four blocks significantly contributed to the predictive capacity of the model: the second block, variables measured in the T-ASI interview; and the forth block, behavioural variables identified through judicial records. This suggests that the T-ASI interview is a more effective tool in predicting therapeutic success in treating drug abuse than the IGI-J tool. This is expected considering that the aim of the IGI-J is to quantify the risk of recidivism and not to evaluate the success of drug treatment therapy. These results are in line with the findings of Aebi et al. (2021) which show that tools for the management of addiction interventions are highly effective in judicial contexts.

The regression model identified 4 variables which are predictors of therapeutic success or failure after the three-month follow-up period. The first, a high number of criminal charges resulting in internment, indicates that chronic antisocial behaviour increases the probability of therapeutic failure. For those with highly consolidated antisocial behaviour, and considering the data, it may be effective to impose strict internment measures through a closed regime, becoming more flexible as the objectives of the individualised program are achieved, leading to a semi-open regime (Fernández-Moreno et al., 2024b). This may facilitate a more adequate adherence to the program and permit more effective therapeutic activities over the course of the internment period.

Equally, good adaptation to the dynamics of the centre appears to be a variable to be considered given that a reduced number of minor sanctions is a predictor of therapeutic success. These results suggest that future research should apply intervention paradigms that help reduce conflicts within internment centres and foster an orientation towards a positive future for participants. Among these paradigms, positive psychology is one which has received the most attention in recent years, with evidence suggesting that it is effective in reducing antisocial behaviour (Riffo-Allende, 2021). Interventions based on the paradigm of positive psychology foster an orientation towards the future through the promotion of positive affect and reinforcement of personal resources (Brooks et al., 2018; Toribio et al., 2018; Santamaría-Cárdaba, 2018), generating contexts of wellbeing that diminish the probability of emerging psychopathologies in adolescents (Bohlmeijer et al., 2017).

Equally, the regression model revealed that high consumption of ecstasy prior to internment is a predictor of therapeutic failure, congruent with the findings of You et al. (2020). This suggests that it is essential to pay particular attention to adolescents who display severe drug poly-consumption at the start of the internment period. To address this variable, biological testing may be effective to detect drug abuse (urinalysis) both at the start of internment and during the

monitoring of release permits from the centres (Dembo et al., 2022). In fact, a growing number of studies have looked to the results of urine testing to identify drug abuse among the internees (Demir et al., 2020). It is also necessary to mention the effectiveness of strategies complementary to drug therapy programs to deal with positive testing for drugs through urinalysis (Johnson et al., 2019; López-Pelayo et al., 2020). These have been particularly effective for adolescents (Henggeler., 2012).

Finally, it should be noted that the regression model not only identified a variable measured by the IGI-J and T-ASI that is a predictor or therapeutic success, the variable personality and behaviour. This was unexpected given that it was hypothesised that dynamic variables measured by the two instruments were better predictors of therapeutic success. The data shows an inverse directionality between the variable personality and behaviour prior to internment and therapeutic success, with regard to the most important studies into these questions (Wojciechowski, 2020; Wojciechowski, 2021; You et al., 2020). These results may be due to the specific characteristics of the sample and the context where the intervention model is applied. Internment at the Teresa de Calcuta CEMJ is generally highly restrictive, where a disciplinary regime is intrinsic to the execution of the judicial sentence. These results are also in line with the proposals of Bonta and Andrews (2017) who suggest that the intensity of the judicial measures must be in accordance with the level of risks presented by the internee. The existence of a variable which is a predictor of therapeutic success, related to a greater degree of behavioural dysfunction, suggests that interventions are truly effective for high-risk populations and that internment does not benefit those who display lower levels of behavioural dysfunction. This is a variable which should be taken into consideration in future research.

As established in Organic Law 5/2000, January 12, on the criminal responsibility of minors (Boletín Oficial del Estado, 2000), the juvenile justice system in Spain must act quickly in the case of criminal behaviour committed by minors, and it is necessary to filter cases by the gravity of the criminal offence as recommended by Mulder et al. (2010). The information provided by this study is valuable in that it permits the development of intervention programs for the treatment of drug abuse oriented towards the subgroup of adolescents with high drug abuse and a consolidated pattern of criminal behaviour. Simply put, the imposition of judicial sanctions and criminal penalties must take into consideration the risk of recidivism of the particular individual in order to adapt, as far as possible, the severity and intensity of judicial sanctions and interventions to the risk profile of the individual.

Furthermore, the results of the study suggest it is important to take into consideration the initial pattern of drug abuse. Urinalysis is recommended both at the start and throughout he course of the internment period. Equally, it is recommended that internment regimes be more restrictive initially, becoming more flexible over time according to the behaviour of the internee.

In interpreting the findings of this research the limitations inherent to this type of study must be considered. The sample size, the non-randomised nature of the sample, and the collection of data were conducted at the same centre, which

may limit the external validity of the results. Similarly, the conclusions drawn from this study can only be extrapolated to male adolescents given that the variables were not evaluated for female adolescents. Another limitation may be the lack of a more extensive follow-up period although this limitation is difficult to overcome due to the differing duration of the probationary periods imposed on participants. Finally, it must be noted that, despite the highly detailed psychological evaluations conducted at the CEMJ Teresa de Calcuta, psychologists tend to use different psychometric tools to evaluate variables such as personality, attention capacity or intelligence. It was not possible to use this type of information in this research.

To overcome the limitations of the present study, future research should include a broader and more complete sample of juvenile delinquents receiving treatment for drug abuse, not only a subsample of those at high risk of antisocial behaviour. In this way a single study could further identify the predictors of therapeutic success in order to adapt the imposition of judicial measures according to the risk of antisocial behaviour and personality variables. Furthermore, future studies should include psychological variables such as personality tests to complement and expand the results of the analysis.

References

Aebi, M., Bessler, C., & Steinhausen, H. C. (2021). A cumulative substance use score as a novel measure to predict risk of criminal recidivism in forensic juvenile male outpatients. *Child Psychiatry & Human Development 52*(1), 30-40. doi: 10.1007/s10578-020-00986-7

Ali, Y., Benjamin, A. C., & Fondacaro, M. R. (2022). Treatment of juvenile offenders: toward multisystemic risk and resource management. In E. Jeglic, & C. Calkins (Eds.), *Handbook of issues in criminal justice reform in the United States.* Springer. doi: 10.1007/978-3-030-77565-0_26

Barnert, E. S., Perry, R., Shetgiri, R., Steers, N., Dudovitz, R., Heard-Garris, N. J., & Chung P. J. (2021). Adolescent protective and risk factors for incarceration through early adulthood. *Journal of Child and Family Studies 30*, 1428-1440. doi: 10.1007/s10826-021-01954-y

Bohlmeijer, E. T., Bolier, L., Lamers, S. M. A., & Westerhof, G. J. (2017). Positive clinical interventions: Why are they important and how do they work? *Papeles del Psicólogo, 38*(1), 34-41. doi: 10.23923/pap.psicol2017.2819

Boletín Oficial del Estado. (2000). *Ley Orgánica 5/2000, de 12 de enero, reguladora de la responsabilidad penal de los menores* [Organic Law 5/2000, of January 12, regulating the criminal responsibility of minors] (Publicación con número de referencia: BOE-A-2000-64) Jefatura del Estado de España. https://www.boe.es/buscar/pdf/2000/BOE-A-2000-641-consolidado.pdf

Bonta, J., & Andrews, D. A. (2017). *The psychology of criminal conduct* (6th Ed.). Routledge. doi: 10.4324/9781315677187

Brislin, S. J., Clark, D. A., Heitzeg, M. M., Samek, D. R., Iacono, W. G., McGue, M., & Hicks, B. M. (2021). Co-development of alcohol use problems and antisocial peer affiliation from ages 11 to 34: Selection, socialization and genetic and environmental influences. *Addiction, 116*(8), 1999 -2007. doi: 10.1111/add.15402

Brooks, M., Miller, E., Abebe, K., & Mulvey, E. (2018). The observed longitudinal relationship between future orientation and substance use among a cohort of youth

with serious criminal offenses. *Substance Use & Misuse, 0*, 1-12. doi: 10.1080/10826084.2018.1441311

Bujosa Vadell, L. M., González Pulido, I., Martín Diz, F., & Reifarth Muñoz, W. (2021). *Menores y justicia Juvenil* [Minors and Juvenile Justice]. Aranzadi.

Contreras, L., Molina, V., & Cano, M. C. (2012). Drug abuse in adolescent offenders: Analysis of the psychosocial variables involved Madrid. *Adicciones 24*(1), 31-34. doi: 10.20882/adicciones.115

Davis J. P., Dumas T. M., Wagner E. F., & Merrin G. J. (2016). Social ecological determinants of substance use treatment entry among serious juvenile offenders from adolescence through emerging adulthood. *Journal of Substance Abuse Treatment 71*, 8-15. doi: 10.1016/j.jsat.2016.08.004.

Dembo, R., Wareham, J., Schmeidler, J., & Wolff, J. (2022). Assessing the validity of self-reports of marijuana use among adolescents entering the juvenile justice system: Gender differences. *Substance Use & Misuse, 57*(1), 145-156. doi: 10.1080/10826084.2021.1995757

Demir, B., Şahin, S., Sancaktar, M., Sargin, E. N., Köse, Z., & Altindağ, A. (2020). Substance use profile, treatment compliance, treatment outcomes and related factors in probation: A retrospective file review. *Journal of Ethnicity in Substance Abuse, 20*(3), 490-505. doi: 10.1080/15332640.2020.1808873

Díaz, R., Castro-Fornieles, J., Serrano, L., González, L., Calvo, R., Goti, J., & Kaminer, Y.(2008). Clinical and research utility of Spanish Teen-Addiction Severity Index (T-ASI). *Addictive Behaviors, 33*(1),188-195. doi: 10.1016/j.addbeh.2007.06.002

Dopp, A. R., Borduin, C. M., White, M. H. II, & Kuppens, S. (2017). Family-based treatments for serious juvenile offenders: A multilevel meta-analysis. *Journal of Consulting and Clinical Psychology, 85*(4), 335-354. doi: 10.1037/ccp0000183

Fernández-Moreno, A., Redondo, N., & Graña J. L. (2024a). Efficacy of a treatment program based on positive psychology for drug use in juvenile offenders. *Adicciones 36*(2), 155-166. doi: 10.20882/adicciones.1778

Fernández-Moreno, A., Redondo, N., & Graña J. L. (2024b). Reincidencia delictiva en adolescentes con comisión de delitos graves y elevado consumo de drogas [Predictors of recidivism among adolescents who have committed serious offences and have high drug consumption]. *Anuario de Psicología Jurídica.* Advance online publication. doi: 10.5093/apj2024a7

Garrido Genovés, V., López Martín, E., & Galvis Doménech, M. J. (2017). Predicción de la reincidencia con delincuentes juveniles: Adaptación del IGI-J [Prediction of recidivism with juvenile delinquents: Adaptation of the IGI-J]. *Revista sobre la Infancia y la Adolescencia*. *12,* 30-41, doi: 10.4995/reinad.2017.6484

Henggeler, S. W., McCart, M. R., Cunningham, P. B., & Chapman, J. E. (2012). Enhancing the effectiveness of juvenile drug courts by integrating evidence-based practices. *Journal of Consulting and Clinical Psychology, 80*(2), 264-275. doi: 10.1037/a0027147

Hiller, M. L., Belenko, S., Dennis, M., Estrada, B., Cain, C., Mackin, J. R., Kagan, R., & Pappacena, L. (2021). The impact of Juvenile Drug Treatment Courts (JDTC) implementing federal evidence-based guidelines on recidivism and substance use: Multisite randomized controlled trial (RCT) and regression discontinuity (RDD) designs. *Health & Justice, 9*(1), 38. doi: 10.1186/s40352-021-00158-2

Hoge, R. D. (2005). Youth Level of Service/Case Management Inventory. In T. Grisso, G. Vincent, & D. Seagrave (Eds.), *Mental health screening and assessment in juvenile justice* (pp. 283-294). Guilford.

Johnson, S., Rains, L. S., Marwaha, S., Strang, J., Craig, T., Weaver, T., McCrone, P., King, M., Fowler, D., Pilling, S., Marston, L., Omar, R. Z., Craig, M., Spencer, J. y Hinton, M. (2019). A contingency management intervention to reduce cannabis use and time to

relapse in early psychosis: The CIRCLE RCT. *Health Technology Assessment, 23*(45). doi: 10.3310/hta23450

Kaminer, Y., Bukstein, O., & Tarter, R. E. (1991). The Teen-Addiction Severity Index: Rationale and reliability. *International Journal on Addiction, 26*(2), 219-26. doi: 10.3109/10826089109053184

Ledgerwood, D. M., & Cunningham, P. B. (2019). Juvenile Drug Treatment Court. *Pediatric Clinics of North America, 66*(6), 1193-1202. doi: 10.1016/j.pcl.2019.08.011

López-Pelayo, H., Altamirano, J., López, E., Barrio, P., López, A., Gual, A., & Lligoña, A. (2020). Role of alcohol and drug detection by regular urine sample testing in pre-transplant evaluation for alcohol liver disease. *Adicciones 32*(4), 243-254. doi: 10.20882/adicciones.1121

Mulder, E., Brand, E., Bullens, R., & Van Marle, H. A. (2010). Classification of risk factors in serious juvenile offenders and the relation between patterns of risk factors and recidivism. *Criminal Behaviour and Mental Health, 20*(1), 23-38. doi: 10.1002/cbm.754

Pérez, E., & Ruiz, S. (2017). Substance use as a risk factor for criminal behavior: A systematic review, *Acción Psicológica,14*(2), 33-50. doi: 10.5944/ap.14.2.20748

Riffo-Allende, G. (2021). Evaluación de una intervención basada en la psicología positiva, para la disminución de conductas antisociales en adolescentes [Evaluation of an intervention based on positive psychology, for reducing antisocial behavior in adolescents]. *International Journal of Developmental and Educational Psychology INFAD Revista de Psicología, 1*(2), 359-370. doi: 10.17060/ijodaep.2021.n1.v2.2119

San Juan, D., Ocáriz, E., & Germán, I. (2009). Young offenders and drug consumption: a psychosocial and crime profile. *Revista Criminalidad, 51,* 147-162

Santamaría-Cárdaba, N. (2018). Educating for development and global citizenship through positive psychology. *Revista Electrónica de Investigación y Docencia Creativa, 7,* 98-109. doi: 10.30827/Digibug.50004

Tanner-Smith, E. E., Steinka-Fry, K. T., Hensman Kettrey, H., & Lipsey, M. W. (2016). *Adolescent substance use treatment effectiveness: A systematic review and meta-analysis.* Peabody Research Institute, Vanderbilt University.

Toribio, L., González-Arratia, N., Van Barneveld, H., & Gil, M. (2018). Positive mental health in Mexican adolescents: Differences by sex. *Revista Costarricense de Psicología, 37*(2),131-143. doi: 10.22544/rcps.v37i02.03

Tripodi, S., Bender, K., & Litschge, C. (2010). Interventions for reducing adolescent alcohol abuse: A meta-analytic review. *Archives of Pediatric and Adolescent Medicine, 164*, 85-91. doi: 10.1001/archpediatrics.2009.235

Tripodi, S., & Bender, K. (2011). Substance abuse treatment for juvenile offenders: A review of quasi-experimental and experimental research. *Journal of Criminal Justice, 39*(3), 246-252. doi: 10.1016/j.jcrimjus.2011.02.007

Uceda-Maza, F. X., Navarro-Pérez, J. J., & Pérez-Cosín J. V. (2016). Adolescents and drugs: The relationship to delinquency. *Revista de Estudios Sociales, 58*, 63-75. doi: 10.7440/res58.2016.05

Vega-Cauich, J. I., & Zumárraga-García, F. M. (2019). Factors associated with the onset and actual consumption of substances in juvenile offender. *Anuario de Psicología Jurídica, 29,* 21-29. doi: 10.5093/apj2018a13

Wojciechowski, T. (2020). Early life poly-victimization and differential development of anxiety as risk factors for the continuity of substance dependence in adulthood. *Substance Use & Misuse, 55*(8), 1347-1355. doi: 10.1080/10826084.2020.1741637

Wojciechowski, T. (2021). Antisocial personality disorder as a predictor of polydrug use: A longitudinal study of the dual mediating roles of deviant peer association and self-control among juvenile offenders. *Journal of Mental Health 54*(5), 452-461. doi: 10.1080/09638237.2021.1922631

You, Y. H., Lu, S. F., Tsai, C. P., Chen, M. Y., Lin, C. Y., Chong, M. Y., Chou W. J., Chen, Y. S., & Wang, L. J. (2020). Predictors of five-year relapse rates of youths with substance abuse who underwent a family-oriented therapy program. *Annals of General Psychiatry, 19,* 17. doi: 10.1186/s12991-020-00269-4

RECEIVED: May 4, 2023
ACCEPTED: November 7, 2023