Perceived social support as predictor of treatment completion in methamphetamine dependent individuals

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RESUMEN

Introducción: el apoyo social percibido (ASP) es considerado un factor importante para aminorar los efectos negativos de acontecimientos estresantes. Asimismo, la literatura sugiere un impacto beneficioso sobre la evolución de diferentes enfermedades. Sin embargo, poco se sabe sobre la relación entre el ASP y la permanencia en el tratamiento en dependientes de metanfetamina que reciben ayuda de manera forzada. **Objetivo:** evaluar el efecto del ASP sobre la permanencia en el tratamiento en individuos dependientes de metanfetaminas. **Método:** estudio prospectivo de cohorte con 67 hombres, en quienes se evaluó ASP, gravedad de la adicción, ansiedad y depresión. **Resultados:** un análisis de varianza de datos obtenidos prospectivamente indicó que la edad, los años de consumo y el ASP diferencian a los participantes que terminaron tratamiento de los que lo abandonaron. Un análisis de regresión logística mostró que el ASP (Odds Ratio, *OR* = .970, Intervalo de Confianza, IC 95 % = .943 - .999) predice reducción en la probabilidad de concluir el tratamiento, mientras que la edad predice un aumento (*OR* = 1.117, IC 95 % = .1.027 - 1.215). **Discusión y conclusiones:** estos resultados muestran que la función del ASP en el tratamiento de problemas crónicos es compleja, y sugieren la necesidad de estudiar la calidad y tipo de interacciones sociales que llevan al éxito terapéutico.

Palabras clave: apoyo social, adicción a drogas, metanfetamina, abandono del tratamiento.

ABSTRACT

Introduction: perceived social support (PSS) is considered an important factor to lessen the negative effects of stressful events. Likewise, the literature suggests a beneficial impact on the evolution of different diseases. However, little is known about the relationship between PSS and treatment completion in methamphetamine-dependent individuals who receive help in a forced manner. **Objective:** to evaluate the effect of perceived social support (PSS) on treatment completion in methamphetamine-dependent individuals. **Methods:** prospective study with a cohort of 67 men on whom PSS, addiction severity, anxiety, and depression were assessed. **Results:** analysis of variance of prospectively obtained data showed that age, years of drug use, and PSS differed between those who completed the treatment and those who did not. Logistic regression analysis showed that increases in PSS (Odds Ratio, *OR* = .970, Confidence Interval - CI 95 % = .943 - .999) were predictive of a decrease in the probability of completing the treatment, while age had the opposite effect (*OR* = 1.117, CI 95 % = .1.027 - 1.215). **Discussion and conclusion:** these results show that the role of social support in the treatment of chronic conditions is complex and suggest the need to study the nature and quality of the social interactions that lead to therapeutic success.

Keywords: social support, drug addiction, methamphetamine, patient dropout.

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INTRODUCTION

In the last decade, methamphetamine (meth) abuse has become a serious threat to public health in northern Mexico. From 2010 to 2015 the number of registered cases increased by 77.6%, from 4,273 to 7,591, according to data reported by the Epidemiological Addictions Warning System (Sistema de Vigilancia Epidemiológica de las Adicciones [SISVEA], 2016), which identified meth as the main drug of impact in recent years, for being the leading cause for treatment demand.

Meth is a highly addictive stimulant that affects the central nervous system (National Institute on Drug Abuse, 2017). Its effects include addiction, psychotic behavior, and brain damage. Its chronic use can cause violent behavior, anxiety, confusion and insomnia, and addicts who interrupt consumption suddenly suffer from withdrawal symptoms that can include suicidal thoughts and actions (Sommers & Baskin, 2006). There are a large number of studies showing that meth use causes cognitive damage, mainly affecting decision making and the individual's ability to choose alternatives that lead to greater long-term well-being (Adinoff et al., 2016; Bechara et al, 2004; De Wilde, 2013; Duarte et al., 2012; van der Plas et al., 2009).

Given this, involuntary residential treatment services are now provided in Mexico for addicts who experience deficits in judgment and state of consciousness. *The Specific Action Program: Prevention and Integral Attention of Addictions 2013-2018* (Programa de Acción Específico: Prevención y Atención Integral de las Adicciones), regulated by Official Mexican Standard NOM-027-SSA3- 2013, and overseen by the State Directorates of Mental Health (CONADIC, 2017 latest update), provides the option to involuntarily commit to treatment chronic drug users who consider themselves incapable of personally requesting the service. Specifically, of the 7,591 cases mentioned above, 42% were committed to treatment involuntarily, mainly at the request of a relative or friend (SISVEA, 2016). The rate of this type of treatment admission has remained constant for a decade, during which approximately 50% of the patients received treatment at the request of someone else. One important aspect of forced treatment is the low level of motivation that characterizes addicts at a time when they are expected to initiate a process of change, compared to those who start treatment voluntarily (Shearer & Egan, 2002). According to Bechara, Dolan, Denburg, Hindes, Anderson, and Nathan (2001), addicts are often insensitive to the problems caused by their drug use, and when faced with choices that provide an immediate reward, even at the risk of future negative consequences, they tend to favor immediate rewards and ignore future consequences of their choices. Unaware of their own problems, addicts may suffer from lack of motivation to initiate treatment, fail to use recommended compensatory strategies, establish unrealistic goals, or experience problems of social readjustment (Verdejo, et al., 2002). Nevertheless, there is some evidence suggesting that forced treatment can be effective in promoting acceptance of responsibility for improving life habits and increasing the likelihood of remaining in treatment (Inciardi et al., 2004; Rourke et al., 2015).

On the other hand, rather than seeing motivation as a personal attribute, recent conceptualizations (Ryan & Deci, 2000), assume that extrinsic factors, including social support, can affect motivation. As regards, perceived social support (PSS) is an extrinsic force with the potential to influence motivation. Social support is an interactive process by which the individual obtains emotional, instrumental, and economic assistance from the social network in which he or she is immersed (Bowling, 1991).

Evidence regarding the effect of PSS on treatment duration has been inconclusive. In a study of 197 patients dependent on various substances, Garmendia et al. (2008) evaluated the role of PSS as a key factor in the mitigation of relapses and permanence in treatment. In this study, the Medical Outcome Survey Social Support Scale (MOS; Sherbourne & Stewart, 1991) was used. This scale has been widely utilized in patients with various chronic diseases (Alarcón-Mora et al., 2017; De la Revilla et al., 2005; Londoño et al., 2012; Martínez et al., 2014). The authors found that PSS was a protective factor for relapse, since for each point increase in MOS score the risk of relapse decreased by three percentage points (*OR* 0.98, 95% CI [0.96, 0.99]) six months after treatment completion. In contrast, Westreich et al. (1997) using the Perceived Social Support Scale of Family (PSS-Fa) found that PSS negatively predicted the likelihood that alcoholics and cocaine or narcotics addicts would remain in a 21-day voluntary treatment. Similar results showing negative effects of social support have been observed in relation to health behaviors in patients with chronic diseases that similarly require adherence to rigorous therapeutic regimens. For example, Alarcón-Mora, Hernández-Barrera, Argüelles-Nava, and Campos (2017) found that instrumental social support may interfere with self-care behavior in patients with diabetes mellitus.

Therefore, in an attempt to elucidate the effect of PSS, the purpose of this study was to evaluate the potential effect of perceived social support on treatment completion in a sample of methamphetamine addicts committed at the request of their family.

METHODS

Subject

The participants were 67 meth -dependent men with an average age of 27.8 years (*SD* = 7.2), 9.4 years (*SD* = 2.1) of schooling, and a 15-year (*SD* = 7.2) history of drug use. All participants were inpatients at a residential rehabilitation center, to which they were involuntarily committed at the request of a family member. The main reason for the demand for treatment was meth use. Sociodemographic characteristics and drug use history is shown in Table 1. None of the individuals included in this sample were receiving pharmacological treatment, had personality disorders unrelated to drug use, or presented neurological alterations documented in their clinical history. The treatment program lasted 90 days, during which the patient was to remain drug abstinent and attend counseling sessions based on Alcoholics Anonymous 12-step program.

Table 1
Sociodemographic characteristics and consumption history of the participants (n = 67)

	%	*M (SD)*
Age		27.8 (7.2)
Education, years		9.4 (2.1)
Marital status		
Single (never married)	55.2	
Divorced	28.4	
Married/stable relationship	26.4	
Meth use, years		7.7 (4.6)
First use, age		20 (6.1)
Quantity, grams		1.3 (1.4)
Type of use		
Smoked	82.1	
Injected	17.9	
Frequency		
Daily, three times or more	77.6	
Daily, two-three times	1.5	
Daily, once	4.5	
Weekly	11.0	
Overdose	29.4	
Meth use only	22.3	
Polyuse drugs	77.6	

Instrument

An initial clinical interview was conducted to collect demographic information and history of drug use. The history of drug use was established by exploring in chronological order the totality of the drugs used over the lifespan, the age at which use began, and the quantity and frequency of use. To determine the impact of drug use on important aspects of daily life, the Addiction Severity Index (ASI; McLellan, Luborsky, Woody, & O'Brien, 1980) 5th edition, Spanish version was used (Bobes, 2007). This instrument is a semi-structured interview composed of seven scales that assess *medical status* (11 items), *employment-support status* (24 items), *alcohol and drug use* (35 items), *legal status* (32 items), *family-social status* (38 items) and *psychiatric status* (23 items). The severity indices were obtained as standardized objective scores that range from 0-1 where the higher the score, the greater the severity of the addiction. To measure PSS, the MOS scale of perceived social support was used. This instrument measures social support in four dimensions: *emotional* (access to counseling, advice, information), *material* (access to domestic help), *social* (having people to communicate with), and *affective* (receiving demonstrations of love, affection and empathy). The MOS is composed of 19 items that measure the frequency of support on a Likert scale where 1 means never and 5 always, and a question about the size of the social network. The overall maximum support score is 95, with an average value of 57 and a minimum of 19. The higher the score, the greater the perceived social support. Several authors have reported an adequate internal consistency of the MOS in the Latino population (Londoño et al., 2012; Martínez et al., 2014; Revilla et al., 2005). In this study, Chronbach's α was .90, which confirms the high consistency of the test. Descriptive statistics and α values for the subscales are shown in Table 2.

To evaluate symptoms of anxiety, the *Beck Anxiety Inventory* (BAI) was used, in its standardized version for the Mexican population (Galindo et al., 2015). This inventory consists of 21 items that assess the severity of symptomatic and behavioral categories of anxiety. The maximum score is 63; the higher the score the higher the intensity of the anxiety symptoms. The BAI has shown high internal consistency (α greater than 0.84) in the Mexican population, as well as test-retest reliability (r = 0.75), and adequate convergent validity (Galindo, et al., 2015). In this study, Chronbach's α was .90 (95% CI [.868, .94]).

In addition, the *Beck Depression Inventory* was used in its adaptation for the Mexican population (González, et al., 2015) to evaluate the symptoms of depression. This inventory measures the presence and severity of

Table 2
Descriptive statistics and analysis of internal consistency of the MOS

Dimensions	Items	Rank	*M (SD)*	Alpha	95% CI
Emotional	2, 3, 7, 8, 12, 15, 16, 18	8 - 40	26 (9.6)	.89	[.84, .92]
Material	1, 4, 11, 14	4 -20	16 (4.3)	.45	[.20, .64]
Social	6, 10, 13, 17	4 - 20	14 (4.7)	.78	[.68, .85]
Affective	5, 9, 19	3 -15	12 (3)	.63	[.44, .76]
Global index	All	19 - 95	60 (18.2)	.90	[.86, .93]

Note: Alpha = Cronbach; CI = confidence interval.

depression in adults and adolescents 13 years of age or older. It consists of 21 items indicative of symptoms such as sadness, crying, loss of pleasure, feelings of failure and guilt, thoughts about or desire to commit suicide, and pessimism, among others. Each item is scored on a 4-point scale, and cutoff scores have been established that allow those being evaluated to be classified into the following four groups: 0-13 minimal depression, 17-19 mild depression, 20-28 moderate depression, and 29- 63 severe depression. The symptoms included in this inventory correspond with those described in the diagnostic criteria of the DSM IV for major depression and dysthymia (González et al., 2015. In this study, Chronbach's α was .74 (95% CI [.636, .819]).

Procedure

All data were collected between January and July 2017, while patients were abstinent, in the second week of treatment and at 90 days in treatment a urine sample was collected to verify abstinence from drugs. Measures were taken during two sessions of approximately 60 minutes. Patients agreed to participate by signing a consent form. All study procedures were approved in advance by the university's Research Ethics Committee.

Design of the study and data analysis

A prospective cohort study was carried out. All the collected information was entered into databases created in the Statistical Package for the Social Sciences (IBM SPSS Statistics for Windows, Version 23.0, Armonk, NY: IBM Corp, 2014) and in Excel 2016. The ASI indices are describes as standard scores (Bobes, et al., 2007) based on the ComScoreCalculation.xls macro used by the Treatment Research Institute. For the MOS, BAI and BDI questionnaires, means and standard deviations (SD) were calculated. Comparisons between the addicts who finished the treatment and those who abandoned it before 90 days were assessed with Student's t-tests. A logistic regression was then performed to identify predictors of permanence in treatment. The dependent variable was coded as 0 "abandoned" and 1 "completed"; the independent variables were individual PSS, index of severity of addiction, anxiety, and depression scores. In addition, demographic variables and meth use characteristics were included in these analyses. Initially, a simple regression was used to select the variables that might have explanatory weight over the dependent variable, and the resulting significant predictor variables were used in the construction of the multivariate model.

RESULTS

Figure 1 shows the proportion of patients still in treatment during the course of 90 days. The Figure shows that all dropouts occurred during the second half of the treatment, ending with a permanence ratio of 0.53. The urinalysis for all patients who completed the treatment (n = 38) was drug negative. As expected, no urine results are available for patients who abandoned the treatment.

Analysis of ASI components revealed that the highest severity score was observed in the *employment-support* component. This result mainly reflects that 77.6% of the participants were economically dependent on their nuclear family and did not have a job at that time. The *psychiatric status* component showed that throughout their life patients have suffered sadness (64.2%), anxiety (65.7%), hallucinations (28.4%), difficulty concentrating (50.7%), difficulty controlling ire (56.7%), suicidal ideation (32.8%), and suicide attempts (20.9%). The *family/social status* component revealed high severity rates with 76.1% reporting having a drug-using family member in the household (father, mother and /or brother-sister). This is important because patients who share this background reported having experienced greater emotional (t = -3.787, p = .001) and physical abuse (t = -2.603, p = .013), than those who did not have a drug-using family member in the household. Further, the effects of this family situation are reflected on subscales of the MOS, where

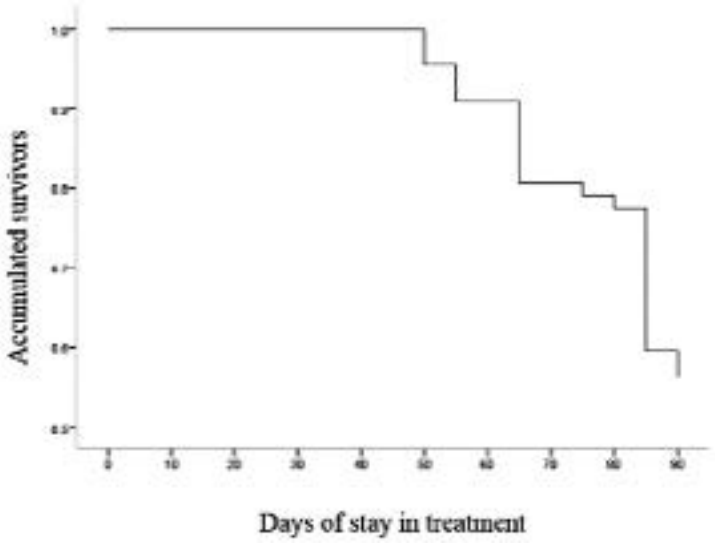

Fig 1. Survival function to patients still in treatment during 90 days.

scores are lower for those living with drug using family members (See Table 3).

Table 4 shows differences between patients who abandoned (DROP) and those who completed (COMP) treatment on each of the measurements taken. In the case of the ASI, none of its components showed significant differences, although the DROP group showed higher severity in the areas employment/support, family/social, and psychiatric status.

As shown in Table 4, the overall PSS score was significantly different between the groups (t = -2.123, p = 038). Specifically, participants who abandoned the treatment perceived greater social support than those who completed it. That the treatment was involuntary suggests that families that provide more support to their addicted relative facilitate their exit before concluding the treatment. With regard to the different dimensions evaluated by the instrument, only the *Affective* dimension was different between the groups (t = -2.077, p = .042), also suggesting that participants who left the treatment perceived greater demonstration of love, affection and empathy from their families. Anxiety and depression scores were not significantly different between groups.

The results of the simple and multivariate logistic regression analyses are shown in Table 5. In the multivariate analysis, variables age, and years of drug use were included, as well as the MOS's global score, using the conditional method forward to assess the level of adjustment afforded by variables *age* and *years of use*.

The logistic regression model was significant in Block 1 (X^2 = 4.476, p = .034) where global MOS score ac-

Table 3
Differences between the PSS of addicts with and without history of drug-using family

	Not drug-using family	Drug - using family			
Dimensions	*M (SD)*		*t (65)*	*p*	95% CI
Emotional	31 (87.8)	24.7 (9.7)	2.330	.023	[.89, 11.61]
Material	18.6 (1.7)	15.7 (4.7)	2.402	.019	[.48, 5.31]
Social	16.1 (3.5)	13.3 (4.9)	2.090	.041	[.12, 5.46]
Affective	14 (1.3)	11.7(3.1)	2.848	.006	[.69, 3.97]
Global index	79.9 (11)	65.6 (18)	2.876	.005	[4.36, 24.21]

Note: Not drug – using family (n = 16); drug – using family (n = 51).
95% CI = confidence interval.

Table 4
Differences between those who completed the treatment and who did not

	DROP	COMP			
	M (SD)	*t (65)*	*p*	95% CI	
Age	25 (5.5)	30 (7.7)	-2.846	.006	[-8.25, -1.44]
Education, years	9.5 (2)	9.3 (2)	.399	.692	[-.84, -1.26]
Drug use, years	12.3 (5.7)	17 (7.6)	-2.731	.008	[-8.04, -1.24]
ASI					
Medical	.210 (.26)	.284 (.27)	-1.009	.276	[-.20, .06]
Employment	.693 (.28)	.650 (.28)	.608	.545	[-.09, .18]
Alcohol	.214 (.21)	.180 (.19)	.678	.500	[-.06, .13]
Drugs	.424 (.12)	.443 (.13)	-.581	.563	[-.08, .04]
Legal	.349 (.29)	.359 (.25)	-.140	.889	[-.14, .12]
Family-social	.575(.24)	.528 (.23)	.799	.427	[-.06, .16]
Psychiatric	.463 (.21)	.355 (.22)	1.950	.055	[-.00, .21]
Anxiety	8.9 (8.8)	11.6 (10.4)	-1.145	.256	[-7.57, 2.05]
Depression	11 (10.2)	11 (9.5)	.057	.955	[-4.72, -4.99]
MOS					
Emotional	28.7 (8.5)	24.2 (10)	-1.926	.059	[-9.17, .16]
Material	17.4 (4.2)	15.7 (4.3)	-1.668	.100	[-3.89, .34]
Social	14.9 (4.6)	13.3 (4.8)	-1.309	.195	[-3.88, .80]
Affective	13.3 (2)	11.6 (3.4)	-2.077	.042	[-2.95, -.05]
Global index	74.3 (14.6)	65 (19.8)	-2.123	.038	[-18.08, -.55]

Note: COMP = completed the treatment (n = 38); DROP = not completed the treatment (n = 29).
95% CI = confidence interval.

Table 5
Risk factors for permanence in treatment. Simple and multivariate logistic (log) regression analysis

	Simple log regression			Multivariate log regression		
	OR	95% CI	*p*	*OR*	95% CI	*p*
Age	1.113	[1.026, 1.207]	.010	1.117	[1.027, 1.215]	.010
Drug use, years	1.105	[1.022, 1.194]	.012			NS
Education, years	.954	[.757, 1.201]	.687			
History drug-familiy	.502	[.161, 1.563]	.234			
MOS Global index	.970	[.943, .999]	.042	.969	[.939, .999]	.045
Anxiety	.255	[.978, 1.086]	.255			
Depression	.999	[.950, 1.049]	.255			

Note: *OR* = Odds Ratio, 95% CI = confidence interval

counts for 8.7% of the variance (R^2 Negelkerke = .087). Observed odds ratios (*OR* = .970) indicate that higher global MOS score is lower probability of finishing treatment (IC 95% [.943, .999], p = .042). Adjusting the model to include age and years of drug use improved the explicative level (R^2 Negelkerke = .226), indicating that the older patients were more likely to remain in treatment (IC 95% [1.027, 1.215], p = .010). This shows that younger addicts confined to the rehabilitation centers perceived greater social support from their family than older ones, which was associated with an increased probability for abandoning the treatment.

DISCUSSION

The results of this study dispute evidence in favor of social support exclusively as a promoter of permanence in treatment (Garmendia et al., 2008; Warren et al., 2007), and endorse studies (Westreich et al., 1997) showing that, under certain circumstances, the social support provided by the family may be a contributing factor to premature termination of the treatment. In our case, 43.3% of the patients interrupted the treatment with family support and against expert opinion. Although in Mexico no dropout rate statistics are available for methamphetamine addiction treatment, research in other countries has returned rates ranging between 12% and 67% (Chen et al., 2015; Hillhouse et al., 2007; McKellar et al., 2006; Rawson et al., 2004).

Dropout during the first 60 days of treatment may indicate that patients lack motivation to participate effectively in rehabilitation programs, or that they have not yet decided to change their lifestyle in relation to drugs (Herbeck et al., 2014; Huang et al., 2011).

In this context, social support may be deemed a source of external motivation, as it is the family and not the patient, who requests and promotes the treatment (Ryan et al., 2000). In this regard, a study by Wild et al. (2006), analyzed the impact of different types of motivation on the treatment of 300 patients addicted to various drugs (alcohol, cocaine, marihuana, opioids, and others). The authors evaluated *external motivation* (when the treatment was at the request of others), *introjected motivation* (referring to internal conflicts, such as feelings of anxiety and guilt related to the treatment decision) and *identified motivation* (when the addict identifies himself with treatment goals), and conducted multiple regression analyses to quantify their differential impact on treatment. The results indicated that only *identified motivation* predicted the costs and benefits of drug abuse during treatment, suggesting that the reasons that addicts might have for seeking treatment have more influence on accomplishing therapeutic goals than the pressure exerted on them by their social networks.

Regarding the success of forced treatments, "Rourke et al. (2015)" examined the effect of family and legal coercion on permanence in treatment in patients addicted to alcohol and other drugs. This study found that none of the sources of coercion had an effect on the patient's willingness to participate or remain in treatment. Rourke, Howard and Martir (2015), speculate that family pressure may in some cases be interpreted by addicts as positive (supportive, inspiring) and in others as negative (lack of understanding, high expectations). The negative effect of social support is similar to what is referred to in the literature as codependency. The codependent family lives in accord with the addict, providing contingencies that aggravate or perpetuate drug use (Calvo, 2007; Delgado et al., 2004). This also appears to be a viable interpretation of our results as the family, by preventing the progression of treatment interrupts the rehabilitation process. This occurs even when addict have 12 years of uninterrupted drug use, do not have a permanent job (77.6%), have had previous inpatient treatment episodes (98.5%), or have been arrested for drug-related crimes (74.6%). Ours results are consistent with Westreich, Heitner, Cooper, Galanter and Guedj (1997) and Alarcón-Mora, Hernández-Barrera, Argüelles-Nava and Campos (2017), who report that patients who receive greater social support tend to be more dependent and to not take responsibility for their own treatment compared with those who report perceiving less social support. The codependent relationship can be maintained by secondary gains such as the occasional achievement of small "promising" changes, the intermittent occurrence of periods of abstinence, or the emotional relief of not having 'abandoned' the addict, which the codependent associates with his or her own behavior, among others (Delgado & Pérez, 2004). Finally, another important variable impacting the results of this study was age of the patient, which was negatively associated with PSS and positively predicting permanence in treatment. That a younger age is associated with abandonment of the treatment has been widely reported in the literature. In a systematic review of 122 studies that identified factors associated with dropout from treatment, Brorson, Ajo, Rand-Hendriksen, & Duckert (2013) found that being younger is a significant risk factor. This is consistent with evidence showing that adolescents tend to be involved in high-risk situations and have impulsivity-related problems (Brorson et al., 2013). Our results showing that younger patients had shorter treatment duration and reported greater social support are consistent with those reported by Warren et al. (2007).

This study presents a main limitation that is the small sample size which limits the power of the analysis to test the predicted objectives. Another limitation is the magnitude of effects, namely, the explicative level was 22.6% of the variance, suggesting that other variables could be related to the probability of finishing treatment. Despite these limitations, we believe that this study helps to understand the social support as an important variable in the treatment of addicts. The selection of the sample with meth -dependent men and the follow-up during 90 days in residential rehabilitation center, as well as the use of a biomarker to check for withdrawal, make the results clinically relevant.

CONCLUSIONS

The aim of this study was to assess the potential effect of perceived social support (MOS) on completion of a 90-day treatment in methamphetamine addicts. The young addicts in our sample were characterized by higher severity in employment, family situation, and mental health. The impact of years of drug use throughout the lifespan was reflected on severity scores in schooling, legal status, and social situation. However, perceived social support did not seem to be affected, as long as the patients perceived having someone with whom to express their emotions, go to in case of need for help or assistance, with whom to share their free time, and someone who expressed love and affection to them. Unlike some earlier studies, this expression of social support was not positively related to treatment completion. There was greater *perceived social support* among younger addicts, which made it more likely that they would abandon the treatment. This finding was especially evident as improvement in the predictive capacity of the regression model when both variables were included. Our results highlight the importance of the family as a promoter of or barrier to the achievement of treatment goals and its importance in the early detection and treatment of impulsive behavior. Moreover, our results highlight the importance of permanence in treatment as a central goal for methamphetamine addicts, given that serious health issues can be addressed in rehabilitation centers, with potential risk reduction for both the addict and those that surround him.

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CONFLICT OF INTERESTS

The authors declare they have no conflict of interests.

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