

Smoking cessation treatment attendance among smokers with substance use disorders

Asistencia a un tratamiento para dejar de fumar con personas con trastorno por uso de sustancias

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Attrition rates pose a considerable problem in smoking cessation intervention, especially with hard-to-treat population (Lappan, Brown & Hendricks, 2019; Lien, Bolstad & Bramness, 2021). In this sense, non-attendance to a smoking cessation treatment decreases effectiveness of these interventions (Garey et al., 2020; Martínez-Vispo, López-Durán, Rodríguez-Cano, Senra & Becoña, 2021), and also brings about several resource-related costs (e.g., therapists time, urinalysis, materials) (Brorson, Arnevik, Rand-hendriksen & Duckert, 2013; Cooper, Kline, Baier & Feeny, 2018). All of the above results in a decrease in the cost-effectiveness of smoking cessation treatments in this population (Cooper et al., 2018).

Although multiple researches on dropping out of smoking cessation treatments has been examined in SUD population, to our knowledge, no previous studies have examined specific predictors associated with treatment attendance in this population. Analyzing which factors predict non-attendance is expected to be clinically informative because it will enable to improve the efficacy and cost-effectiveness of existing smoking treatments. Amid this background, this exploratory study sought to examine which baseline variables (i.e., sociodemographic, tobacco, and substance use related variables) were associated with non-attendance to the smoking cessation treatment.

This is a secondary study derived from a parent randomized controlled trial (Aonso-Diego, González-Roz,

Krotter, García-Pérez & Secades-Villa, 2021). The eligibility criteria were: being ≥ 18 years old, smoking at least 10 cigarettes per day within the last year, and being enrolled in an outpatient substance use treatment. Participants were excluded if they had severe mental disorders (i.e., active psychotic disorder, or suicidal ideation), current cannabis use, or were receiving any other smoking cessation treatment, either psychological or pharmacological. Out of 101 participants who were assessed in an individual baseline interview, 15 were excluded for not meeting inclusion criteria, and a total of 86 patients were assigned to smoking cessation treatment.

A binary logistic regression analysis was performed with attrition groups as dependent variable. The independent variables introduced were: sociodemographic (i.e., sex, age, employment status, marital status, and educational level), smoking features (i.e., cigarettes per day, years of regular use, nicotine dependence, urine cotinine levels, previous quit attempts, and current motivation to quit), and substance use related characteristics, that is, primary substance use (cocaine, alcohol, opioids, or cannabis), days of substance abstinence, and days on substance use treatment. Treatment condition [(cognitive-behavioral treatment (CBT) or CBT + contingency management (CM)] was also included in the analyses.

Findings indicate that out of 86 participants allocated to treatment groups, 65 (75.58%) patients began the treatment, and the remaining 21 (24.42%) patients did

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Table 1. *Baseline predictors of non-attendance.*

Variables	<i>B</i>	<i>OR</i>	95%CI	<i>p</i>
Age	-.248	.780	.623, .976	.030
Sex (female)	.938	2.554	.550, 11.872	.232
Educational level (< high school)	1.138	3.121	.591, 16.464	.180
Marital status (married)	-.408	.665	.131, 3.382	.623
Employment status (working)	-.185	.831	.130, 5.309	.845
CPD	-.092	.912	.801, 1.039	.165
Years of regular use	.172	1.187	.976, 1.444	.085
Cotinine	.000	1.000	.999, 1.001	.589
FTND	.115	1.122	.721, 1.745	.611
Previous quit attempts	-.039	.962	.526, 1.759	.900
Stage of change				
Contemplation (vs. precontemplation)	.195	1.215	.039, 37.961	.912
Prepare to action (vs. precontemplation)	.026	1.027	.031, 34.218	.988
Primary substance				
Cocaine (vs. opioids)	3.064	21.423	1.194, 384.301	.037
Alcohol (vs. opioids)	1.760	5.810	.267, 126.515	.263
Cannabis (vs. opioids)	.511	1.667	.034, 82.526	.797
Days of substance abstinence	.001	1.001	.999, 1.002	.269
Days on substance use treatment	-.005	.995	.991, .999	.024
Treatment group (CBT)	.279	1.322	.234, 7.465	.754

Note. 'Completers' is the reference category; *OR*: Odds ratio; *CI*: confidence interval; *CPD*: cigarettes per day; *FTND*: Fagerström test for nicotine dependence; *CBT*: cognitive-behavioral treatment; AUC_{log} : base-10 logarithmic transformation of the area under the curve.

not start the treatment. Among participants who initiated the treatment, 17 participants (19.76%) dropped out during the treatment, and 48 patients completed the entire treatment (55.81%). Table 1 displays predictors of non-attendance. Results indicated that younger age ($OR = .780$), cocaine as a primary substance use of treatment ($OR = 21.42$), and fewer days on substance use treatment ($OR = .995$), were significantly associated with greater likelihood of non-attendance.

These results suggest that several individuals with SUD did not benefit from smoking cessation treatments and underscore the importance of developing innovative treatment strategies aimed at increasing attendance at smoking cessation treatments in these populations (McCrabb et al., 2019; Naslund et al., 2017). Online treatments could be a useful strategy to this population, especially for young smokers, due to its ease of use at any time and place, the ability to tailor messages to the participants' characteristics (e.g., gender, or psychiatric disorders), few material resources, and the ability to send reminder messages to facilitate adherence (e.g., medication) (Whittaker et al., 2019).

In conclusion, this study provides evidence for understanding non-attendance rates in smokers with SUD assigned to smoking cessation treatment. Findings indicated that younger patients, treated for cocaine use,

and with fewer days on substance use treatment, were more likely to not attend the treatment. Future smoking cessation trials with this hard-to-treat population should consider incorporating tailored strategies to improve attendance and retention rates. We hope this information can help guide clinicians to develop and implement interventions for reducing tobacco-related illness among SUD population.

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Conflict of interests

The authors declare no conflicts of interest.

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