Poly-substance use, treatment completion, and contact with the justice system: a multistate analysis of treatments for substance use disorders between 2010-2019 in Chile

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Background

Substance use disorders (SUD) often co-occur with criminality, including violence, arrests, and incarceration[1;2;3;4;5]. People with polysubstance use (PSU) are considered a high-risk population, as they are associated with mortality, relapse, and contact with the criminal justice system (CJS)[6;7;8;9;10]. Although completing SUD treatment is linked with better outcomes, including preventing contact with CJS, the role of treatment completion in the link between PSU and contact with CJS is unclear[11;12;13;14]. Studies have found mixed evidence regarding the association between PSU and treatment completion rates[15;16;17;18;19]. Thus, it is crucial to determine the role of treatment completion in order to improve outcomes in people with PSU. However, analyzing the role of treatment outcomes in people with PSU is challenging, as there is limited research on this population in Latin America, and high-risk populations have often been overlooked [20;21;22;23;24].

Objectives

Estimate the mediating effects of completing SUD treatment on the relationship between PSU at admission and contact with CJS among adult patients admitted to SUD treatment programs in Chile during 2010-2019. Specific: (1) To describe the prevalence of PSU, treatment completion, and contact with CJS in the sample, (2) to compare the risk of contact with CJS between people with poly and single-substance use, and (3) to estimate the proportion of the effect of PSU and treatment outcome on the contact with CJS.

Methods

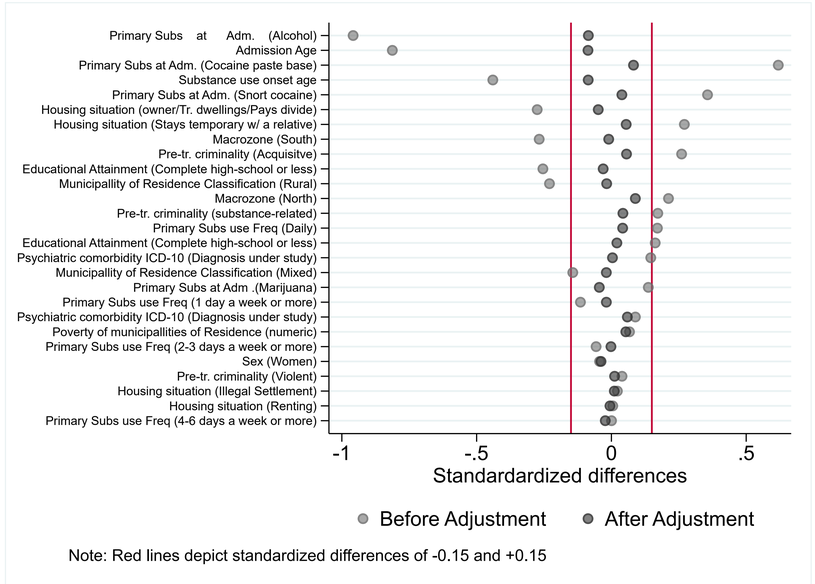
This research design is a retrospective cohort based on the administrative data's record linkage. The study will use data from Chilean SUTs programs and Prosecutor's Office through a deterministic linkage process. We will request an amendment to an existing ethical approval from a study using the same data.

Variables

Exposure: baseline PSU (using more than one main substance among alcohol and illicit drugs at admission to SUD treatment, whether sequential or concurrent); **Mediator**: SUD treatment outcome (complete vs. dropout or spelled by misconduct); **Outcome**: contact with CJS (offense that led to a condemnatory sentence).

Analytical Plan

The study controlled for various confounding variables related to substance use, demographics, and social factors through weights generated through the inverse probability of PSU. Patients were weighted by the inverse probability of polysubstance use based on several predictors; Weights were truncated at the 1st and 99th percentiles[25].



Note: Red lines depict standardized differences of -0.15 and +0.15

Figure 1: Covariate balance

We used the illness-death multistate model to simultaneously estimate transitions between admission and treatment outcome, treatment outcome and contact with CJS, and admission and contact with CJS (without completing treatment).

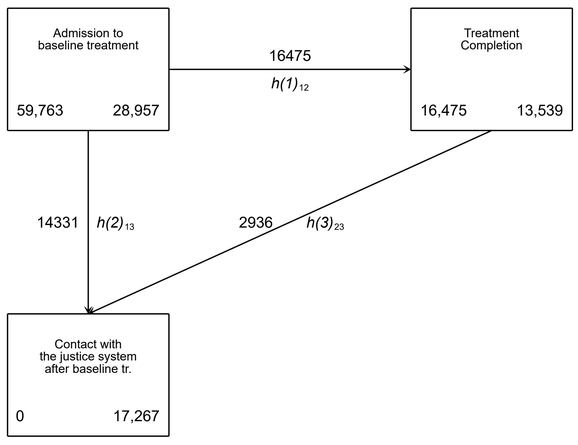


Figure 2: Multistate scheme

We calculated the Aalen-Johansen estimator for transition probabilities at 6 months, 1 and 3 years using the `multistate` Stata command[26]. Secondary analyses focused on mediation, estimating the effects of PSU given treatment outcome at 6 months, 1 and 3 years using a standard time-to-first-event approach. Proportions mediated were estimated using the bootstrap method or m-estimation of standard errors on standardized survival curves and restricted mean survival times (RMST) through the `stpm2` and `stipw` Stata commands[27;28;29;30]. We also plan to run separate analyses on patients admitted to different treatment settings. Preliminary markdowns are available on: https://fondecytacc.github.io/nDP/an_ser_2023_step_0.html.

Preliminary Results

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