Assessing the impact of substance use treatment for preventing criminal justice system contact in Chile

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Background

Research has shown that reducing SUDs through effective treatment leads to a reduction in criminal activity[1]. However, most of this evidence comes from developed countries, and results from the Latin American context are largely unknown[2]. The structural, economic, epidemiological context and substance use treatment (SUT) policy response are different in this region, making the question about SUT effectiveness through locally based data relevant[3].

Objectives

We analyse Chile as a case study and examine the impact of SUT on the prevention of contact with the criminal justice system in the short (3 and 6 months), middle (1 year), and long term (3 years).

Methods

This research relies on a population-based record-linkage retrospective cohort design. We used a deterministic linkage process (using encryption of the Chilean Unique National ID) to merge electronic records of individuals in publicly funded Chilean SUT programs with the Prosecutor's Office data at the national level between 2010 and 2019.

We described the cumulative incidence rate and incidence rate ratio of offenses that ended with a condemnatory sentence and of offenses that ended with imprisonment after baseline treatment outcome, and its variation by baseline treatment outcome: Treatment completion, Late (>= 3months) & Early Discharge (within the first 3 months of treatment). Posteriorly, we aim to calculate the association between Baseline treatment outcome and Contact with justice system through Royston-Parmar models while adjusting for several covariates, and using 2-step inverse probability weigthing Royston-Parmar survival regression and adjusting for covariates[4].

Analyses are depicted in the following equations:

$$ln(H(t)|x_i)_{offense\ judged\ with\ condemnatory\ sentence} = s(ln(t)|\eta, k_0) + Bx_i$$

$$ln(H(t)|x_i)_{offense\ judged\ with\ prison\ sentence} = s(ln(t)|\eta, k_0) + Bx_i$$

$$where\ x\hat{\beta}_i =$$

- Treatment non − completion (Early)
- Treatment non − completion (Late)
- Treatment setting
- Sex
- Substance use onset age
- Educational attainment
- Primary substance At sdmission
- Primary substance at sdmission usage frequency
- Occupational status
- Poly − substance use
- Number of children (binary)
- Tenure status of households
- Macrozone
- Number of previous offenses (violent)
- Number of previous offenses (acquisitive)
- Number of previous offenses (SUD)
- Number of previous offenses (other)
- Psychiatric comorbidity
- Substance use severity
- Urban/rural municipallity of residence
- Percetage of proverty of the municipallity of residence
- Substance use onset
- Treatment admission year
- Cohabitation Status
- Physical comorbidity
- Age at admission to treatment(RCS)

Preliminary Results

Of the 109,756 SENDA patients, 70,863 (65%) were eligible to be matched with the Prossecutor's Office database. Of the sample, 22,287 (31%) had at least an offense that ended with a condemnatory sentence after baseline treatment. Those that had at least an offense that ended with imprisonment after baseline treatment were 5,144 (7%).

Table 1: Offending with condemnatory sentence from Baseline Treatment Outcome (x1000 person-years)

Outcome	Person-time	Event	Rate	LoCI95%	UpCI95%
Tr. Comp	63975	3825	60	58	62
Early Dis	46815	6130	131	128	134
Late Dis	118807	12326	104	102	106
Total	**229621**	**22287**	**97**	**96**	**98**

Table 2: Offending with imprisonment from Baseline Treatment Outcome (x1000 person-years)

Outcome	Person-time	Event	Rate	LoCI95%	UpCI95%
Tr. Comp	76631	664	9	8	9
Early Dis	65880	1711	26	25	27
Late Dis	160259	2766	17	17	18
Total	**302813**	**5144**	**17**	**17**	**17**

- Compared to those receiving no treatment (early drop-out), those completing SUT took longer to contact the criminal justice system (IRR [Incidence rate ratio]= 2.18 95% IC 2.09,2.27) and to commit an offence leading to imprisonment 2.90 (95% IC 2.64,3.18).
- Compared to receiving some treatment (late drop-out), those completing SUT took longer (IRR= 1.73 95% CI 1.67,1.80) to contact the criminal justice system and to imprisonment (IRR= 1.93 95% CI 1.77,2.10).
- However, the difference was lower when we compared those who received some treatment with those who no SUT for some period (late drop-out) regarding the time to contact the criminal justice system (IRR= 1.26 95% CI 1.22,1.30) and imprisonment (IRR= 1.50 95% CI 1.41,1.61).

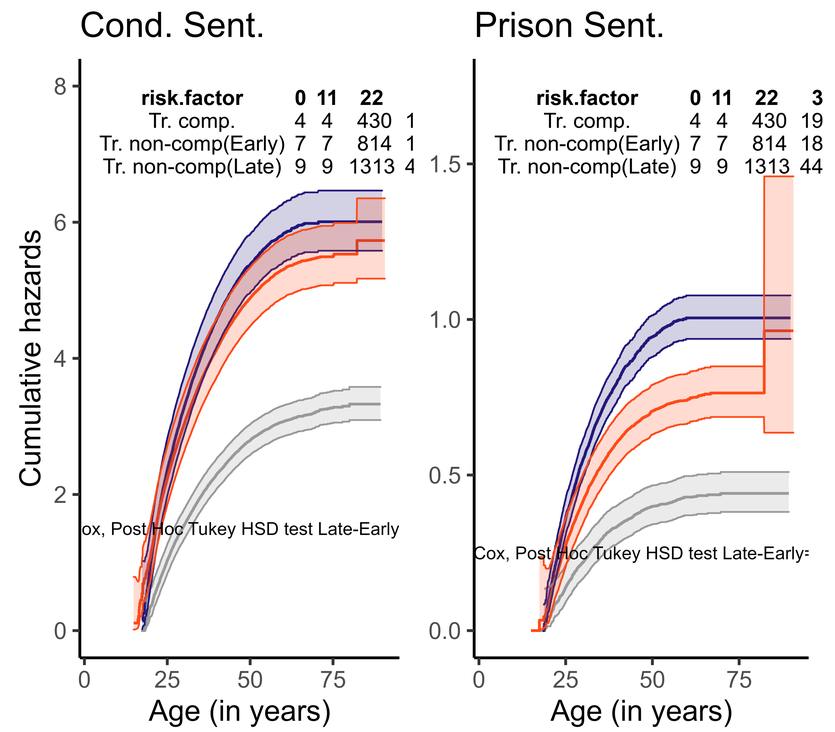

Figure 1: Cumulative Hazards of Offense from baseline treatment outcome (Staggered entry)

References

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