

Comparison of Treatment Discontinuation Risk Between Oral Medication and Long-Acting Injectable (LAI) in Schizophrenia : Using PSM and IPW

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INTRODUCTION

- Schizophrenia has a prevalence of about 1% and is characterized by (1) a shortened average lifespan, (2) a high rate of suicide attempts, and (3) economic isolation and human rights violations due to social stigma.
- Early detection of the disease and on-going relapse management through medication are crucial, but studies show that **the relapse rate is 82%** after initial recovery from schizophrenia, **and the risk of relapse increases 5 times if medication is discontinued.**
- Medication treatment includes **oral medications** taken daily and long-acting **injectable antipsychotics (LAI)** that last for extended periods (e.g., 2, 4, 12, 24, 64 weeks). While **LAI** are useful for improving medication adherence, they are **less preferred by patients.**

AIM

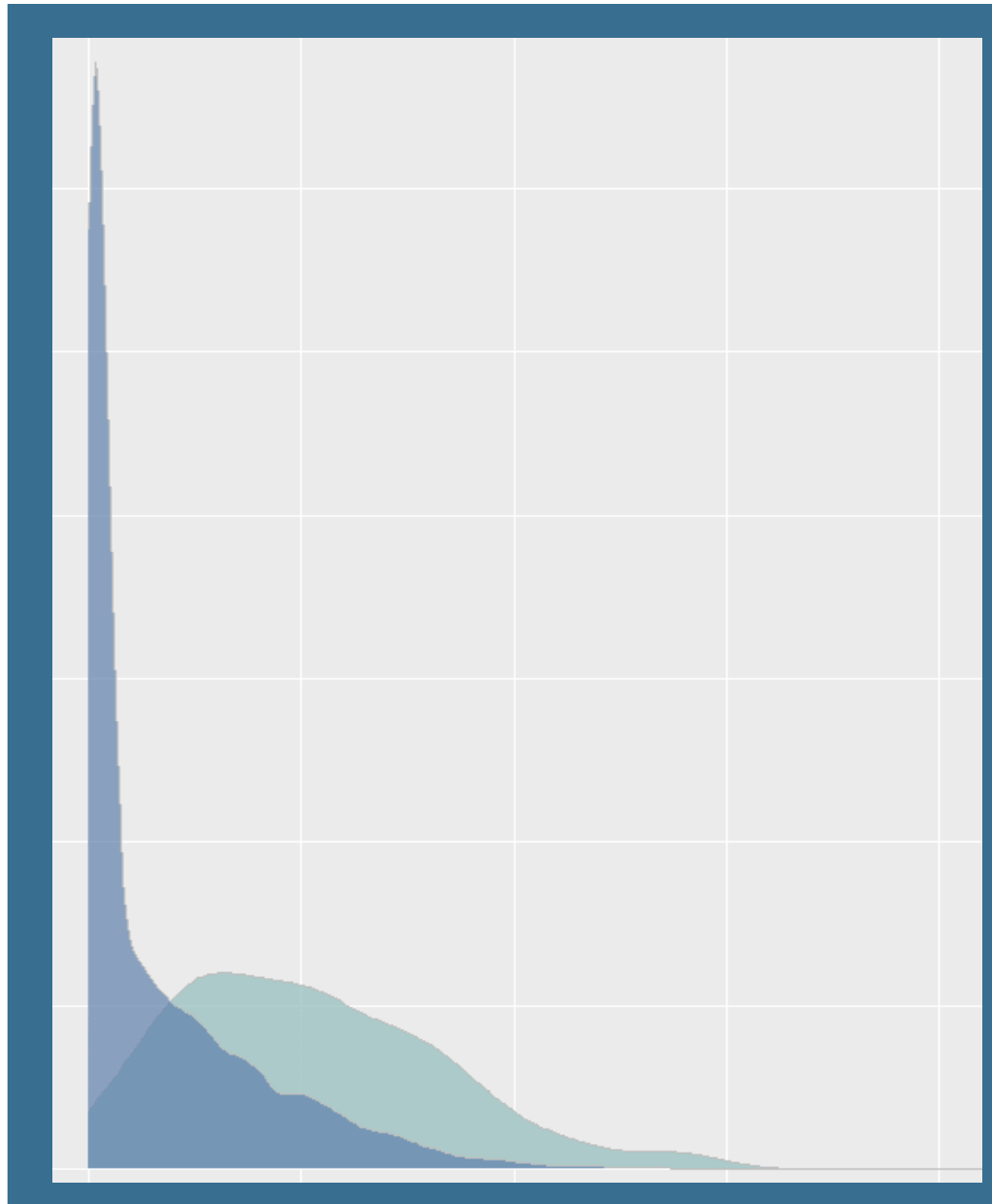
- To compare the risk of medication discontinuation** between **oral medications and long-acting injectable antipsychotics (LAI)** using **claims data** from Korea's Health Insurance Review and Assessment Service (HIRA).
- Inferential causation**, such as Propensity Score Matching (PSM) and Inverse Probability Weighting (IPW), is applied to **Real-World data (claim data)** to create an **environment similar to that of randomized controlled trials**, and **the results are compared.**

METHOD

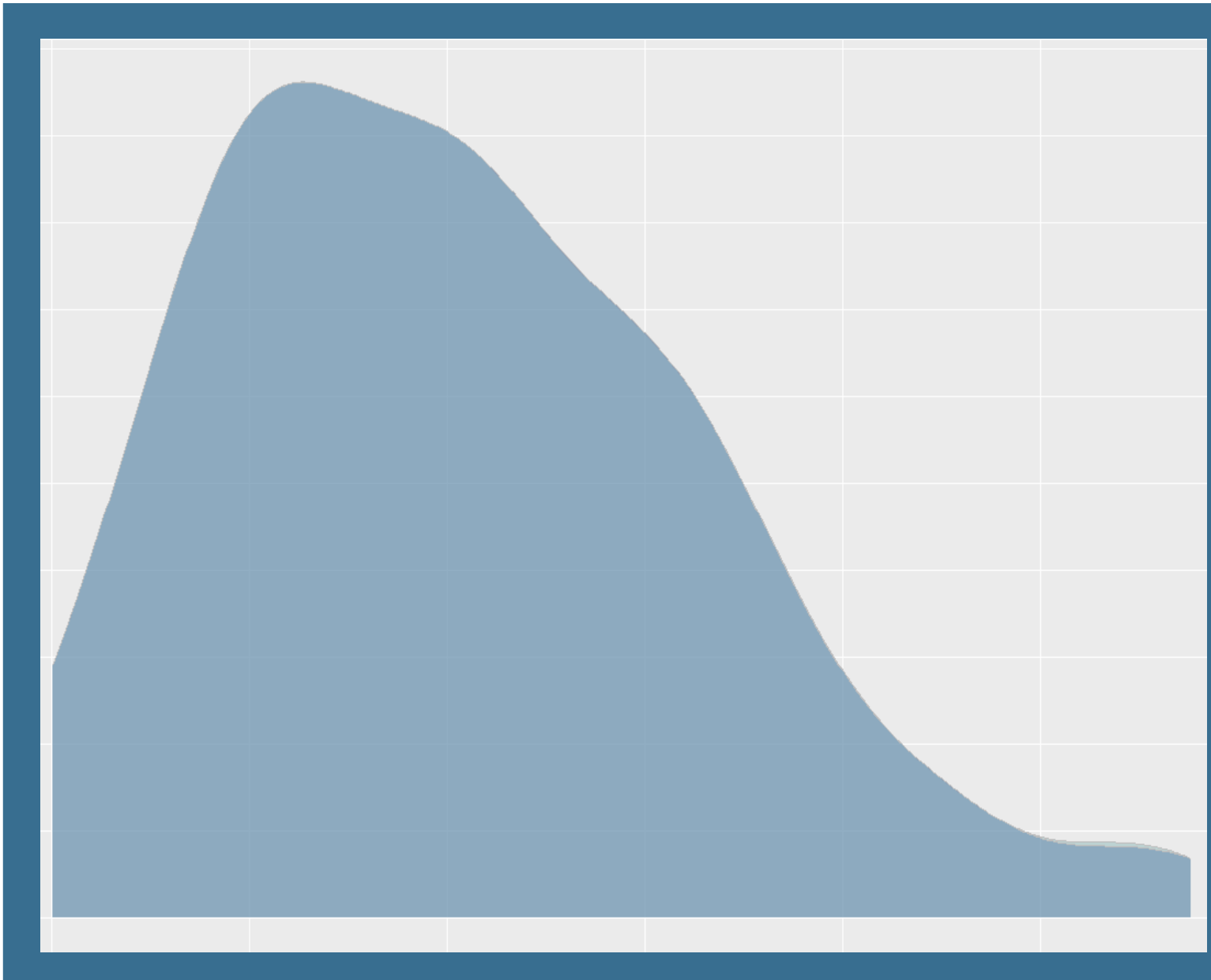
- Data source**
 - This study utilized South Korea's National Health Insurance (NHI) claims data from HIRA.
 - It is a retrospective observational study of outpatient schizophrenia patients aged 18 to under 65 who received medication treatment from 2020 to 2022.
- Outcome**
 - Continuation or Discontinuation of medication treatment
- Covariates**
 - Gender, Age, Residence, Medical expenses, Type of medical institution, Location of the medical institution, Characteristics of the medical institution (e.g., number of doctors and beds), Comorbidities (e.g., hypertension, diabetes, hyperlipidemia).
- Subject**
 - Unadjusted Model** : 9,646 patients were included (Oral n=9,467, LAIs n=179).
 - PSM** : 358 patients were included using 1:1 nearest neighbor matching based on propensity scores (Oral n=179, LAIs n=179).
 - IPW** : 9,454 patients were included after applying inverse probability weighting to the propensity scores and truncating weights below the 1st percentile and above the 99th percentile (Oral n=9,394, LAIs n=60).
- Statistical Analysis**
 - Kaplan-Meier Survival Curve, Cox Proportional Hazard Model were implement with a significance level 5%.

RESULTS

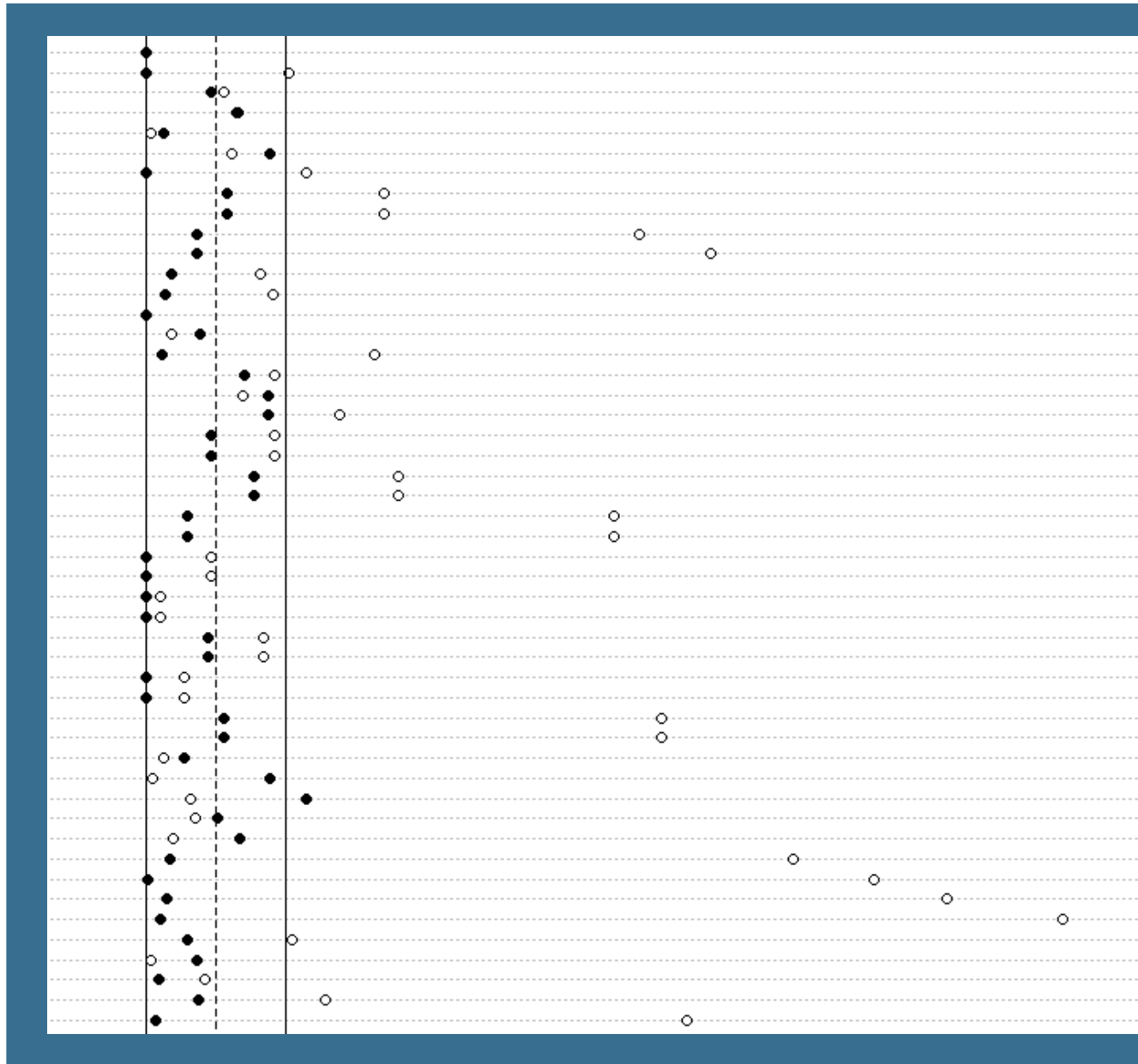
Distribution of Propensity Score and SMD (Oral vs LAI)



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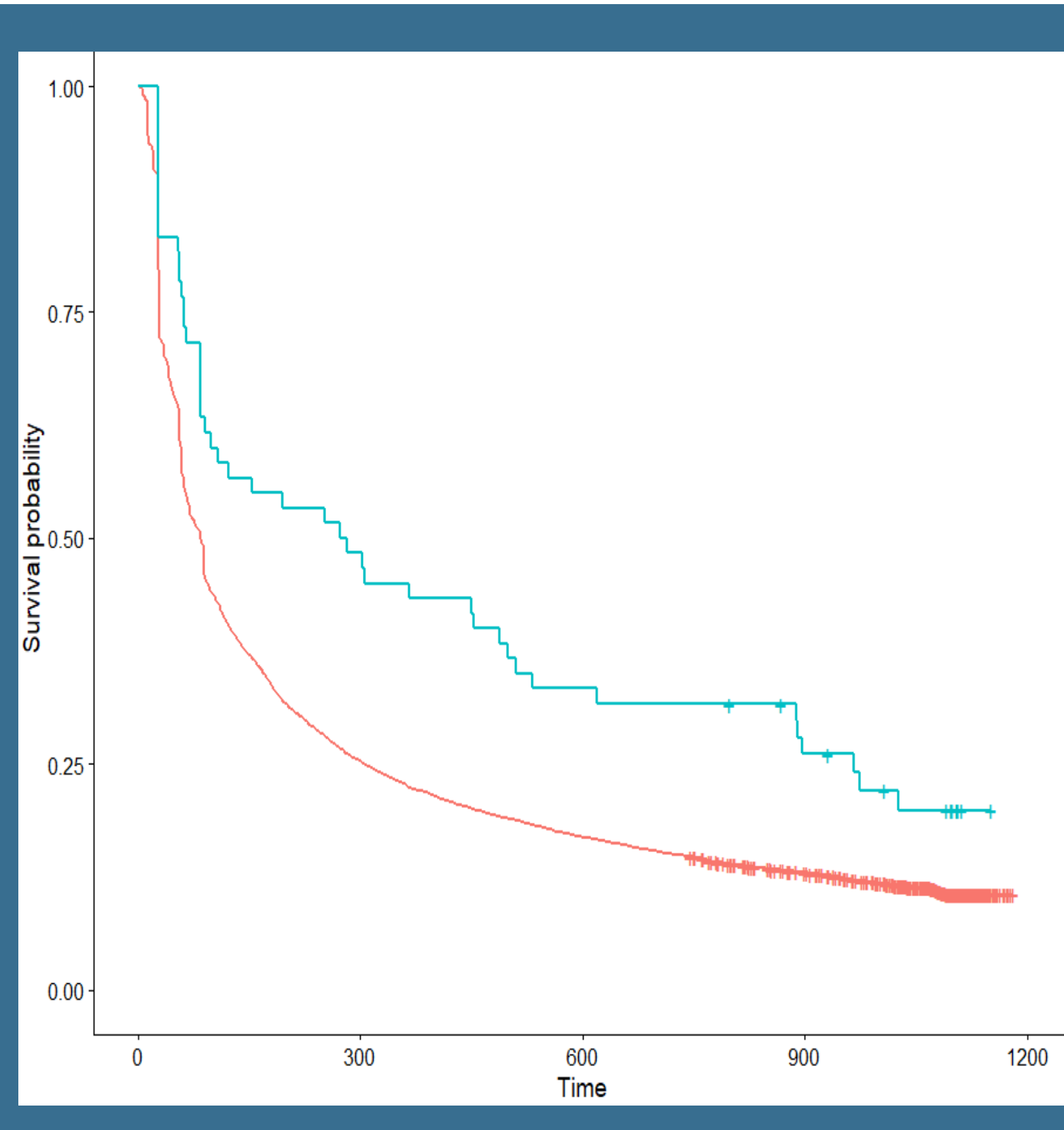
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< Standardized Mean Difference >

Comparison of Outcomes (Oral vs LAI)

- In the **Kaplan-Meier Survival Curve**, the **LAI group** showed a **lower risk** of treatment discontinuation **compared to the oral medication group** across all models, and this was **statistically significant**.
- As a result of applying the **Cox Proportional Hazard Model**,
 - In the unadjusted model, the **Hazard Ratio (HR)** was **0.56**, while in the PSM model, the HR was **0.61**, and in the IPW model, it was **0.62**.
 - This indicates that **the risk of treatment discontinuation** in the **LAI group** is 0.56, 0.61, and 0.62 times **lower**, respectively, compared to the oral medication group.



	Treatment status		
	N	HR (95% CI)	P-value
Unadjusted	9,646	0.56 (0.47-0.66)	<0.001
Adjusted			
PS Stratification			
Subclass 1	3,216	0.43 (0.16-1.16)	0.096
Subclass 2	3,215	0.50 (0.30-0.83)	0.008
Subclass 3	3,215	0.60 (0.50-0.73)	<0.001
Pooled	9,646	0.61 (0.48-0.79)	<0.001
PS Matching	358	0.61 (0.48-0.79)	<0.001
IPW (Weighting)	9,454	0.62 (0.54-0.72)	<0.001

* Treatment status : treatment discontinuation or continuation

CONCLUSIONS

- The analysis of the **causal effect** of treatment discontinuation risk (using PSM and IPW) in outpatients with schizophrenia revealed that **long-acting injectable (LAI) antipsychotics are a more favorable choice** than oral medications when **aiming to prevent treatment discontinuation**.
- Recently, **South Korea** has been **expanding health insurance coverage for LAI antipsychotics** to improve treatment adherence and continuity for schizophrenia patients.
- This study aligns with this policy direction** by demonstrating that **the risk of treatment discontinuation is lower with LAI** compared to oral medications.

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CONTACT INFORMATION

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