

Shared Identity and Patient Care: Examining Racial and Gender Concordance on Treatment and Testing Adherence in CML

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Background and Motivation

- Physician-patient dynamic as pivotal in addressing healthcare disparities.
- Underserved racial and ethnic minorities report dissatisfaction, lack of continuity, and perceive lower quality of care.
- Effective communication competency is essential for delivering high-quality patient care.
- However, healthcare disparities are often linked to broader societal status differentials based on factors such as race, ethnicity, gender, and age.

Objective

- Exploration of racial/ethnic and gender concordance effects on medication and medical testing adherence in Chronic Myeloid Leukemia (CML) patients.
- Study the specific roles of oncologists and primary care physicians (PCPs) in each outcome.

Methods

- Utilized Electronic Health Record (EHR) data from an integrated health system spanning CML diagnoses from 2007 to 2019.
- Exposure:** Evaluated concordance between patients and their PCPs and oncologists based on shared race/ethnicity and gender.
- Outcome:** Treatment Adherence (TKIs) and Adherence to biomarker testing as suggested by clinical guidelines.

Statistical Analysis

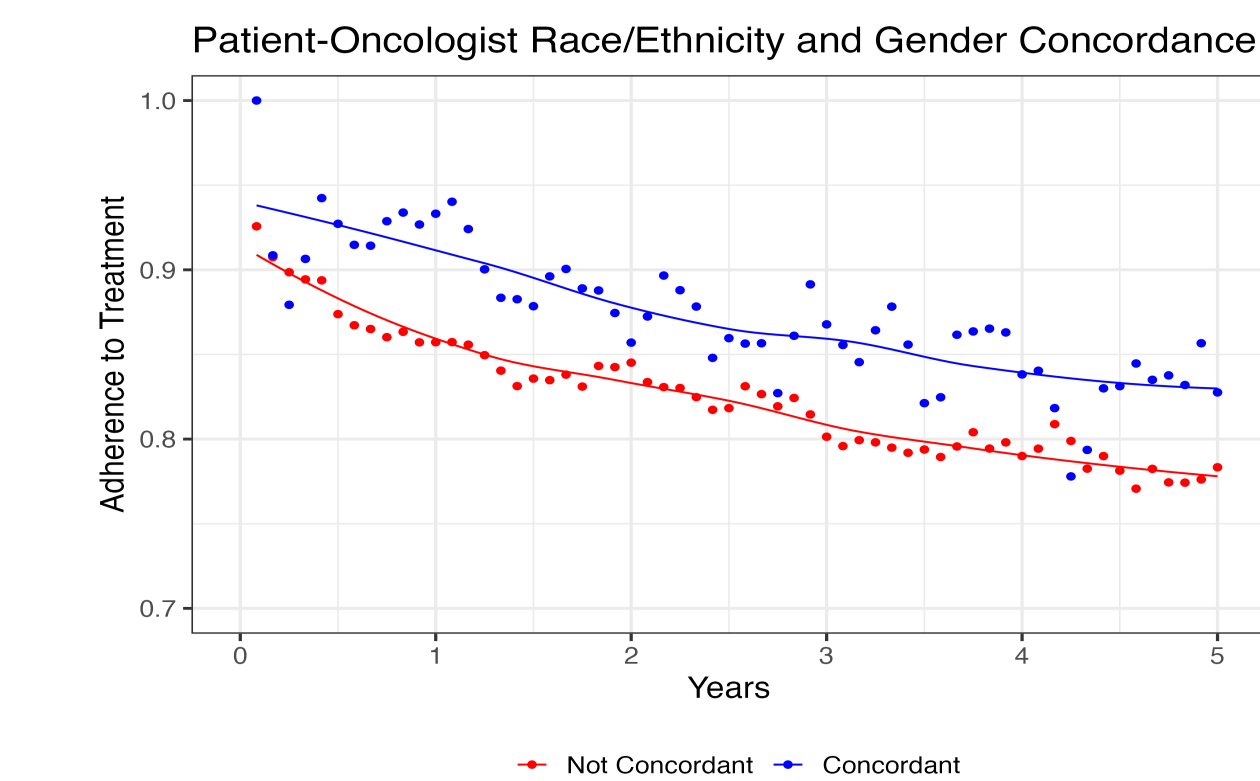
- Validated Concordance Metric: Investigated if patient or physician characteristics influenced race/ethnicity and gender concordance.
- Implemented linear mixed effect model with patient and physician random effects to assess exposure effects on outcomes, capturing baseline adherence levels and physician practice variability.
- Controlled for fixed effects: time, CML-related visits/year, different physicians consulted, Charlson comorbidity index, insurance type/coverage, physician experience (years in specialty), and patient household income.

Results

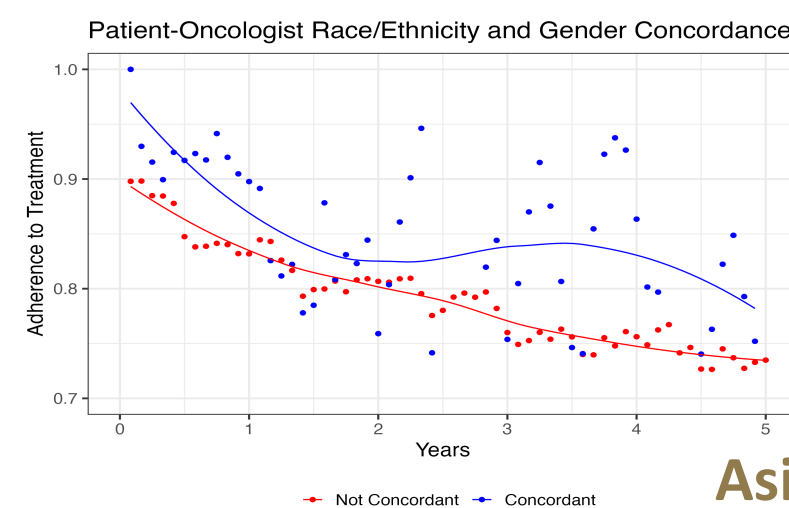
Concordance Metric Validation

Variable	Patient- Oncologist		Patient-PCP	
	Coefficient	P-Value	Coefficient	P-Value
Intercept	0.095	0.33	0.277	0.07
BMI	-0.004	0.11	-0.005	0.14
Charlson Index	0.007	0.38	-0.010	0.38
Type of insurance:				
Medicare	-0.070	0.14	0.091	0.30
Commercial	-0.086	0.28	-0.003	0.97
Private Pay	0.040	0.41	-0.050	0.53
Physician Experience	0.0032	0.10	0.006	0.02
Median Household Income (\$10,000s)	0.0107	0.06	0.003	0.68
Number of Visits per year	0.0001	0.89	0.00002	0.99
Number of Physicians Consulted	-0.0028	0.69	-0.001	0.85

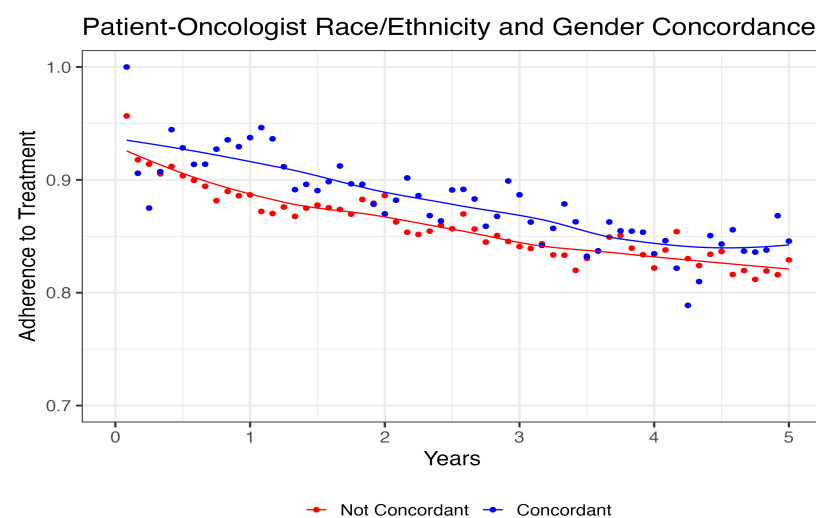
Five-Year Tx Adherence trends



Black and Hispanic Group

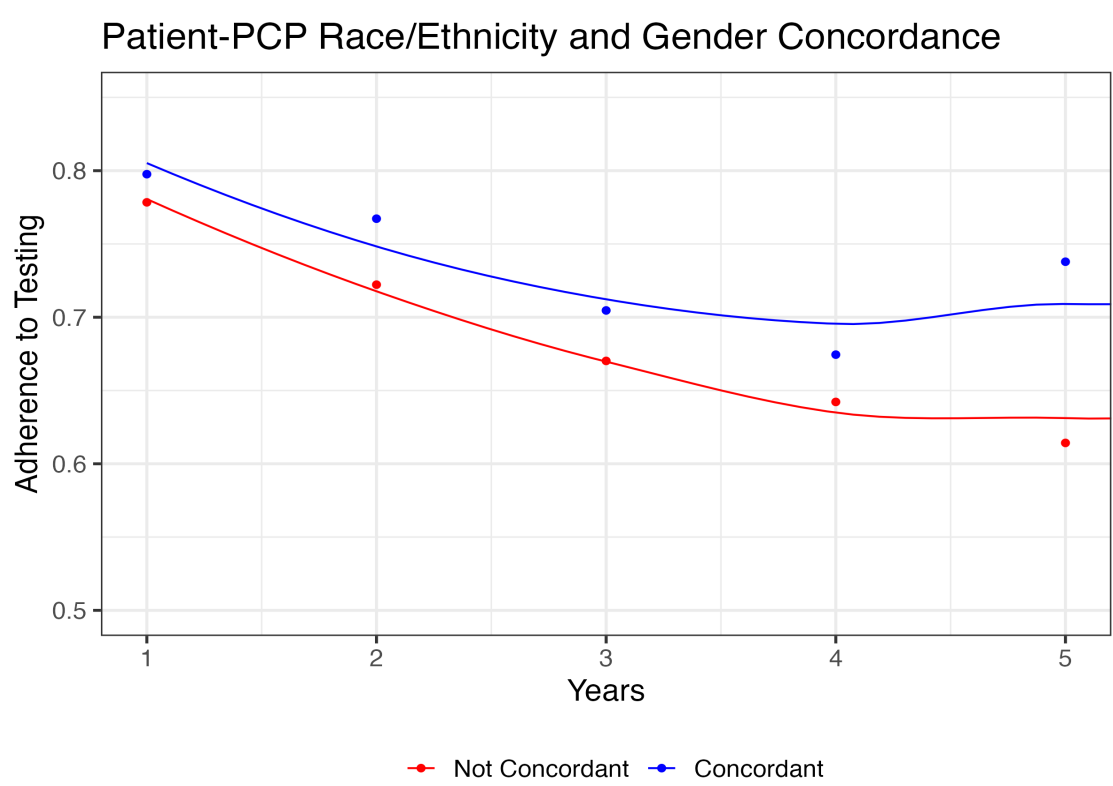


Asian and White Group

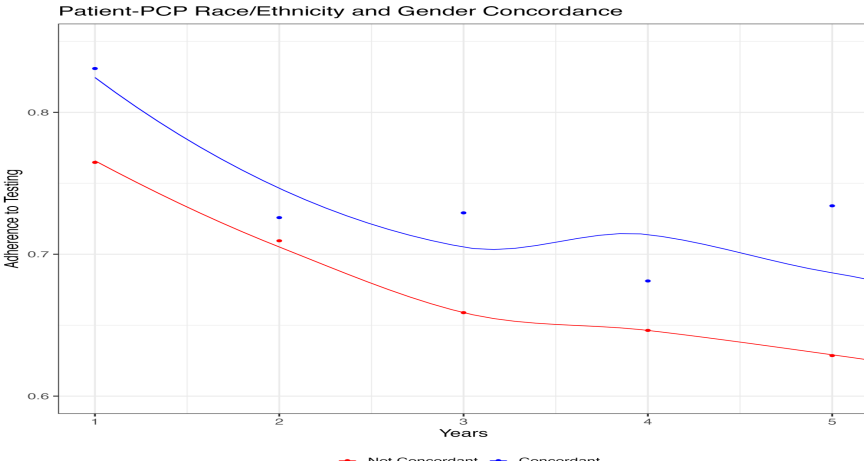


- Patient-Oncologist match shows a statistically significant 6.7% higher adherence to treatment over five years (p-value: 0.04).
- Minority group (Black/African American and Hispanic patients) experiences a notably greater advantage from concordance in adherence trajectories compared to the non-concordant group, while the majority group (Asian and Non-Hispanic White patients) also benefits but to a lesser extent.

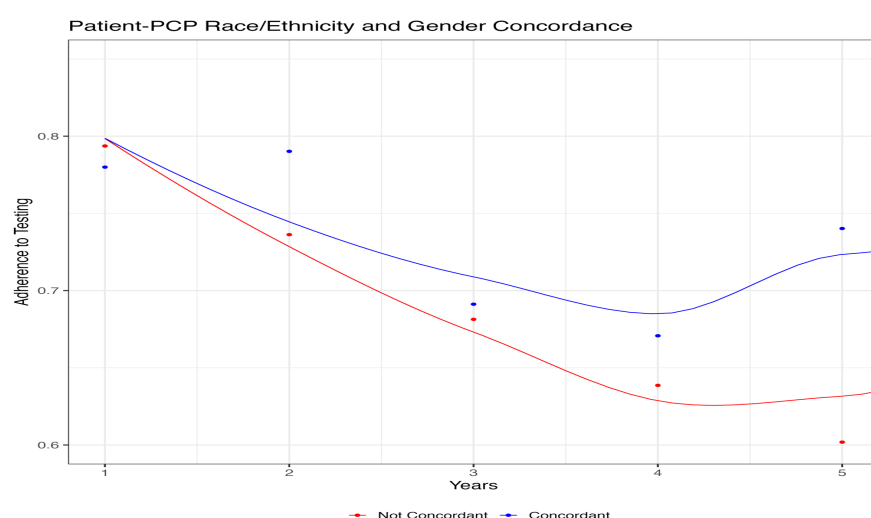
Five-Year Biomarker Testing Adherence Trends



Black and Hispanic Group



Asian and White Group



- Patient-PCP match demonstrates a significant 3.7% higher biomarker testing adherence in the concordant group over 5 years (p-value: 0.056).
- Minority group (Black and Hispanic patients) exhibits a more pronounced benefit from concordance in biomarker testing adherence compared to the non-concordant group, while the advantage of concordance for the majority group becomes clearer over time.

Additional Results:

- Female patients with female oncologists exhibit a 6.7% higher treatment adherence compared to male counterparts (p-value: 0.12).
- Female patients with female PCPs demonstrate a 4.75% higher biomarker testing adherence compared to male counterparts (p-value: 0.17).

Discussion

- Racial/ethnic and gender concordance with oncologists significantly enhances treatment adherence, particularly among minority groups.
- While race/ethnicity and gender concordance with primary care physicians didn't consistently impact treatment adherence, it significantly influenced biomarker testing adherence.
- Physician specialty influences patient adherence, with patient-oncologist concordance fostering commitment to treatment regimens and patient-PCP concordance vital for systematic follow-up care, revealing nuanced aspects of healthcare dynamics.
- Gender concordance, notably between female patients and female oncologists and PCPs, correlates with higher treatment adherence and biomarker testing adherence, respectively.