Neighborhood Associated Exposures and Socioeconomic Factors are Associated with Prostate Biopsy Outcomes

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Background
• Neighborhood associated socioeconomic factors such as poverty, education, segregation, employment, crime, insurance status, and residential stability, are important predictors of prostate cancer (PCA) mortality
• Chicago neighborhoods with the highest PCA mortality also have the highest rates of crime and poverty, and lowest levels of educational attainment

Research Objectives
• To determine if census tract level socioeconomic factors are independently associated with prostate biopsy outcomes

Methods
• Evaluated a prospectively recruited cohort of 1485 men undergoing routine prostate specific antigen (PSA) screening (n=566) or initial biopsy (n=919) for elevated PSA or abnormal digital rectal exam (DRE)
• Exploratory factor analytic approach (EFA) tested 23 socioeconomic and environmental variables resulting in two highly reliable indices capturing > 70% of variance among neighborhood variables
• Multivariate analyses examined the associations between clinical risk factors, NATS and NAA with overall PCA diagnosis and Gleason grade >3+3

Results
• Cohort included 647 (43.6%) Black men and 837 (56.4%) non-Black men. Of these, 437 (67.5%) Blacks and 482 (57.6%) non-Blacks underwent biopsy
• Model additionally adjusted for DRE and PSA, showed that NATS (OR 1.64; 1.22-2.18; p=0.001) and NAA (OR 0.71; 0.53-0.95; p=0.02) remain independently associated with PCA diagnosis
• In fully adjusted ordinal regression models for Gleason grade 6-10, the strength and direction of association persist for NATS (OR 1.68; p=0.004) and NAA (OR 0.50, p=0.001)

Limitations
• Zip code sourced socioeconomic and environmental data could only be obtained for two-thirds of our cohort (i.e. limited to Chicago metro area)

Conclusions
• Census tract level neighborhood exposures are independently associated with biopsy outcomes
• Utilization of neighborhood measures can inform public policy and should be validated in biopsy cohorts