

## Redefining the Social Geography of Community STI Risk: An Ecological Study of the Association, Mediators, and Moderators of Area-Level Prostitution Arrests

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**Background:** Core groups such as sex workers have been implicated in contributing to higher area STI risk but no studies have analyzed mediators and moderators of this relationship using population data.

**Objectives:** Assess the overall association of area-level prostitution and STI risk, and mediators and moderators of the relationship.

**Methods:** Point-level prostitution and drug arrests were geocoded and aggregated by Census blockgroup. Chlamydia (CT), gonorrhea (GC), syphilis and incident HIV positive test results were aggregated by blockgroup after eliminating same-organism positive tests within 14 days of an initial positive test. Census data also defined moderators: blockgroups with >75% black and >20% Latino (top decile) and >60% below 200% of the federal poverty line (top quartile). Negative binomial and zero-inflated negative binomial regressions were used to estimate incident rate ratios (IRR) of each STI.

**Results:** There was a dose-response relationship between prostitution arrest blockgroup quintiles and IRR of each STI. In models including drug arrest data, this association was completely eliminated. Though % black blockgroup composition had significant interaction with prostitution arrest rates and with respect to its relationship with STI IRR, % Latino did not consistently have this association. Blockgroups with proportions of low minority and low poverty had highest drug arrest IRR for each STI. In these areas, prostitution arrest IRR were only significant for CT and GC and were consistently lower than drug arrest IRRs.

**Conclusions:** Though prostitution arrests are associated with STI risk, this relationship is mediated by drug arrests. Associations of both arrest rates are strongest in low minority, low poverty communities, indicating that high baseline STI prevalence is not moderated by levels of drug and prostitution arrests.

**Implications for Programs, Policy, and Research:** These data suggest that important relationships exist for prostitution and, to a greater degree, drug arrests within communities traditionally defined as 'low-risk'.