Sexual Partnership Contexts among Latino Men in Miami, Florida: A Multilevel Latent Class Analysis of Egocentric Network Data

Keywords: Sexually transmitted infection, HIV, multilevel latent class analysis, egocentric social networks

Extended Abstract

Addressing ongoing urgent public health crises requires the use of social network strategies, innovative methodologies, and community-engaged approaches to detect and address priority populations with increased susceptibilities. In the United States, Latino men face a disproportionate burden of human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs).[1, 2] Miami-Dade County, Florida, a county where 54.3% of the population was born outside the U.S.,[3] stands out nationally for its high rates of new HIV infections, with more than two-thirds of these cases among Latino individuals.[4] Between 2020 and 2023, STI rates among Latino men in Miami-Dade County rose, whereas rates among non-Latino White men declined.[5] Effective prevention tools, such as condoms, pre-exposure prophylaxis (PrEP) for HIV prevention, and doxycycline post-exposure prophylaxis (doxyPEP), and existing sexual health services, do not adequately reach Latino men. Exposure to HIV and STIs is shaped by individual (substance use, PrEP use, and number of partners), interpersonal (relationship dynamics, HIV status disclosure, condom use), and community factors (access to prevention and care services).[6] Examining the social contexts of these behaviors is critical for developing targeted prevention strategies. This presentation will describe the methods, findings, ethical considerations, and implications of applying an innovative analytic approach that merges multilevel latent class analysis (MLCA) and egocentric sexual network data.

The present study is a secondary analysis of cross-sectional egocentric social network data collected from February 2022-August 2023. Our sample included 471 PrEP-eligible Latino men (egos) who reported on 1,025 sexual partners (alters). All participants provided verbal and written consent. We utilized MLCA to identify subgroups of their sexual partners using a set of alter- and dyadic-level indicator variables informed by prior literature surrounding sexual risk behaviors and sexual partnership characteristics. Using multinomial logistic regression, we also examined whether dyadic, ego, and network characteristics were associated with sexual partner typologies. Analyses were conducted using the *multilevLCA* package in R (version 4.4.1).[7]

Three distinct sexual partner typologies emerged: (1) main, emotionally close, HIV-negative seroconcordant partner (e.g., both partners are HIV-negative); (2) casual partners with whom ego has selective or no condomless anal sex, and (3) low HIV/STI exposure, casual partners. Two upper-level groups emerged: (1) networks with mostly casual partners and (2) networks with a main sexual partner. Rates of condomless sex were greatest among main, emotionally close partners and were lowest among low-exposure casual partners. Results from the multinomial logistic regression showed that PrEP use, country of nativity, sexual network size, and substance use were significantly associated with group and class membership.

This study highlights the utility of MLCA in analyzing egocentric sexual network data to examine both the potential transmission of communicable conditions and the immediate social context in which health behaviors, such as condom use and HIV disclosure, take place. By

using MLCA to identify partner typologies, we deepen our understanding of the sexual networks and HIV/STI vulnerabilities in priority populations—an area where individual-level analytics fall short by missing key intersections of behavior, relationships, and demographics. Future research can further use these techniques to identify groups such as Latino men or other priority populations, helping tailor sexual health interventions. Our findings support the development of multilevel, dyadic interventions to increase engagement in protective HIV/STI behaviors (e.g., engaging in prevention discussions with partners) and to improve access to prevention services, such as PrEP, doxyPEP and routine HIV and STI screening. This presentation will also highlight lessons learned from using this innovative methodology.

References

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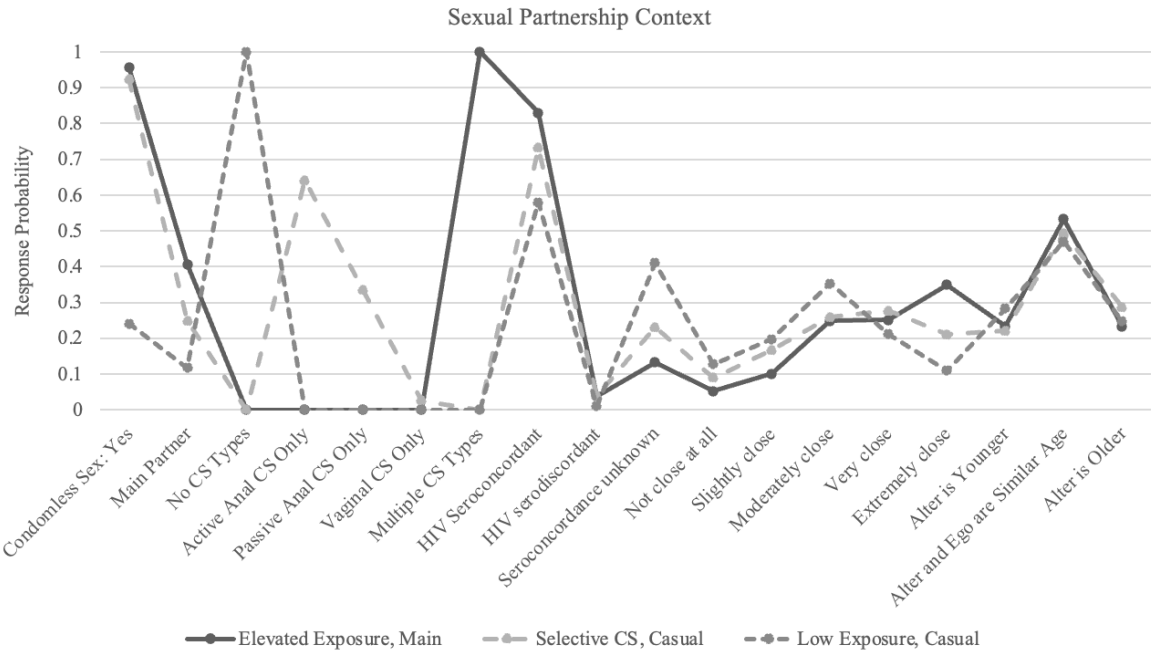

Figure 1. Response Probability Profile Plot of Sexual Partnership Contexts
This figure presents the response probability plot for the three level 1 classes: Elevated exposure, main; Selective Condomless Sex (CS), Casual; Low Exposure, Casual.