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A novel method for utilizing sex seller advertisements to identify HIV care needs at a community level

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Introduction: Women who sell sex face a disproportionately high HIV burden and often engage in transmission behaviors beyond selling sex, yet uptake of prevention and treatment remains below target. Data on HIV transmission behaviors, contexts, and demographics of sex sellers are scarce. Identifying subgroups at heightened risk could help HIV-focused organizations improve outreach. This study proposes aggregating and analyzing sex seller advertisements to identify HIV transmission indicators as a potential method to inform intervention planning and evaluation.

Methods: We used web scraping to collect sex seller advertisements posted over two days in Texas. From 1,206 randomly sampled advertisements, we applied qualitative coding to identify mentions of condomless sex, group sex, or drug use during sexual exchanges, achieving high intercoder agreement (Cohen's kappa = 0.89). We also recorded advertisement language and the sex sellers' gender identity and race/ethnicity, when stated.

Results: All advertisements were from women, with 0.8% (n=10) indicating a non-cisgender identity. Advertisement language was either in English (76%, n=961) or Spanish (24%,n=285); 27% (n=320) of sex sellers identified as Latina. Most (70%, n = 849) omitted racial/ethnic information. Overall, 20% (n=245) of advertisements had at least one HIV transmission-related indicator: 15% (n=180) advertised condomless sex, 4% (n=52) offered group sex, and 3% (n=37) mentioned drug use during exchange. Less than 3% had 2 or more indicators. Advertisements with these transmission-related indicators were more likely to be in English than in Spanish (aOR=1.48, 95% CI [1.04, 2.11], p=0.03).

Conclusions: Scraping and coding sex seller ads appears to be a feasible method for community health monitoring. This process can identify potential subgroups who may need tailored HIV prevention and treatment services by local HIV service organizations. Future work will examine geographic variation in HIV transmission behaviors and assess scalability for community use via automated natural language processing.