Social and Structural Barriers to Cervical Cancer Screening among Sex Workers Living with and Affected by HIV

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Background

- Despite high rates of HIV and HPV among sex workers globally, including high-risk oncogenic types, the barriers to cervical screening among sex workers (among sex workers in Vancouver, living with and at risk of HIV. SWs) remain unknown. This longitudinal study therefore examined the individual, interpersonal, work environment and macro-structural correlates of annual cervical screening

Methods

- This analysis drew on data from the AESHA Study (**A**n **E**valuation of **S**ex Workers **H**ealth **A**ccess), an open prospective cohort of indoor and outdoor SWs, overseen by a community advisory board.
- Eligibility criteria included biologically female SWs, 14+ years. Participants were recruited using time-location sampling at both indoor and outdoor venues through day and late night outreach. A detailed interview questionnaire and HIV/STI screening were administered on a semi-annual basis.
- Using ArcGIS, pap testing locations and solicitation sites across Vancouver were mapped, and a 15 minute walking buffer surrounding each location was created. A pap testing site was considered 'spatially accessible' if there was overlap between the pap testing site and solicitation space buffers.
- Generalized Estimating Equations (GEE) to model correlates of annual cervical screening. *A priori* confounders that were also significant at p<0.10 in bivariate analysis were considered for inclusion in the final multivariable explanatory model.

Table 1: Socio-demographic and other characteristics among 611 street- and off-street female sex workers in Vancouver (at Baseline), stratified by annual cervical screening, with p-values

Characteristic	Total 611 (100%)	Annual testing 236 (38.6%)	No annual testing 375 (61.4%)	p-value
Individual/Biological factors				
Age (mean, median (IQR)	34.8, 34 (28-42)	34.5, 33.5 (27-41)	35.0, 34 (28-42)	0.560
HIV positive†	63 (10.3)	33 (14.0)	30 (8.00)	0.010**
HIV negative‡	548 (89.7)	203(86.0)	345 (92.0)	-
Aboriginal ancestry	213 (34.9)	98 (41.5)	115 (30.7)	0.011**
Injection drug use	245 (40.1)	95 (40.3)	150 (40.0)	0.790
No injection drug use	366 (59.9)	141 (59.8)	225 (60.0)	-
Interpersonal factors				
Inconsistent condom use by clients†	112 (18.3)	47 (19.9)	65 (17.3)	0.440
Consistent condom use by clients†	499 (81.7)	189 (80.1)	310 (82.7)	-
Work environment factors				
Primary place of service†				
Street/public places	274 (44.8)	111 (47.0)	163 (43.5)	-
Informal indoor	153 (25.0)	61 (25.9)	92 (24.5)	0.683
Street/public places	274 (44.8)	111 (47.0)	163 (43.5)	-
Macro Structural Factors				
High school education	312 (51.5)	112 (47.5)	200 (53.3)	0.050**
Less than high school education	299 (48.9)	124 (52.5)	175 (46.7)	-
Born in Canada	453 (74.5)	185 (74.6)	268 (74.4)	-
Migrated to Canada 10+ years ago	44 (7.2)	29 (11.7)	15 (4.2)	0.488
Migrated to Canada 5-9 years ago	46(7.5)	13 (5.2)	33 (9.2)	0.445
Migrated to Canada recently (0-4 years ago)	65(10.7)	21 (8.4)	44 (12.2)	0.045**
Homeless†	186 (30.4)	72 (30.5)	114 (30.4)	0.391
Not homeless†	425 (69.6)	164 (69.5)	261 (69.6)	-
Experienced barriers to health care services †	386 (63.2)	132 (55.9)	254 (67.7)	0.095*
No barriers to health care services †	225 (36.8)	104 (44.1)	121 (32.3)	-
Accessed services that offer Pap testing †	314 (51.4)	138 (58.5)	176 (46.9)	0.003**
Did not access services offering Pap testing †	297 (48.6)	98 (41.5)	199 (53.1)	-
GIS variables				
Pap testing site within 15 minutes walking distance of primary place of servicing clients	160 (58.8)	56 (57.7)	104 (59.4)	0.785

†Within the last six months

Results

- Of the 611 eligible SWs (median age=34 years, Interquartile range (IQR): 28-42), 236 (38.6%) had an annual pap test and 63 (10.3%) were HIV seropositive at baseline.
- In bivariable analysis, spatial accessibility was not associated with annual pap testing (OR=1.11; 95%CI 0.81-1.52), with 84% reporting a pap testing site within 15 mins of their solicitation space (See figure 1).

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Results continued:

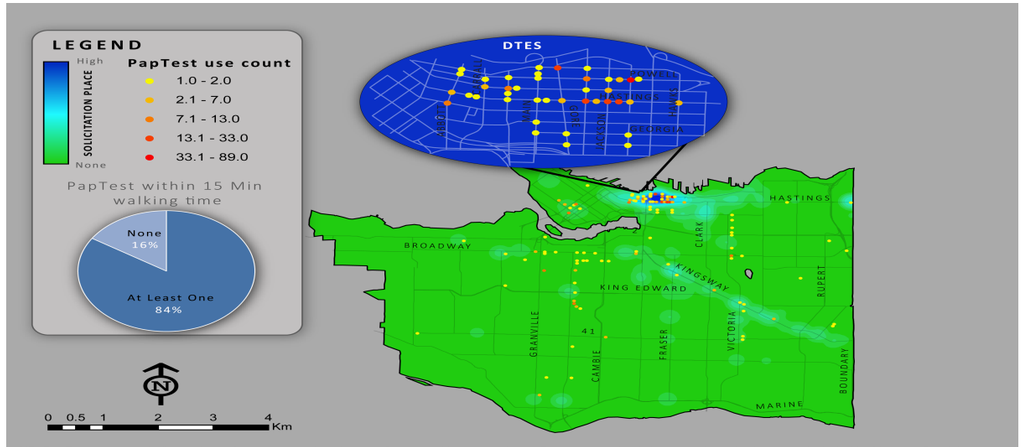
- In multivariable analysis, HIV seropositivity (Adjusted Odds Ratio (AOR)=1.65 95%(CI) 1.06-2.58), and contact with outreach services (AOR= 1.35; 95%CI 1.09-1.66) were positively correlated with regular pap testing. Barriers to health care access (primarily language barriers) were negatively correlated with regular pap testing (AOR=0.81; 95%CI 0.65-1.00).

Table 2. Longitudinal Multivariable Correlates of annual cervical screening (using generalized estimating equations), updated every 6 months

Characteristic	Odds Ratio (OR)	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Individual and biological factors		
Age	0.99 (0.98-1.01)	-
HIV positive†	1.79 (1.15-2.78)**	1.65 (1.06-2.58)**
Aboriginal ancestry	1.44 (1.09-1.91)	-
Macro-Structural Factors		-
Born in Canada	REF	
Migrated to Canada 10+ years ago	0.84 (0.52-1.37)	-
Migrated to Canada 5-9 years ago	0.82 (0.48-1.39)	-
Migrated to Canada recently (0-4 years ago)	0.58 (0.34-0.99)	-
Migrated to Canada 10+ years ago	0.84 (0.52-1.37)	-
Homelessness	0.90 (0.72-1.14)	-
Experienced any barriers to health care†	0.83 (0.67-1.03)**	0.81 (0.65-1.00)*
Accessed outreach services offering Pap testing†	1.37 (1.11-1.69)*	1.35 (1.09-1.66)**

** Significant at p<0.05
* Marginally significant at p<0.10
† past 6 months

Figure 1: Map of sex work solicitation spaces in relation to cervical screening locations as reported by street- and off-street sex workers across Metro Vancouver



NB: PapTest use count indicates how often a pap test location was frequented by sex workers. Pap tests received via outreach methods are not included in this map. Spatial accessibility, defined as having at least one pap test location within 15 minutes walking distance of place of solicitation is displayed in the legend.

Discussion

- While HIV seropositive SWs were more likely to have annual cervical screening, baseline annual cervical screening among HIV seropositive (52.4%) and seronegative SWs (37.0%) remain suboptimal.
- These findings suggest that even in settings where the physical distance to access services is reduced, other forms of socio-structural barriers (e.g., service delivery models, language barriers) continue to impede regular Pap testing. These results demonstrate the need for non-judgmental, innovative models (e.g., peer-led outreach) as well as cervical screening delivery models that are integrated with HIV/sexual and reproductive health care and delivered within close proximity to those most in need.
- These findings support calls for decriminalization of sex work, which may facilitate sex worker-led reproductive health service delivery models, and improve access to broader sexual reproductive health health services, including cervical screening.