

# Is the Number of Sexual Partners Still Important for Gay and Bisexual Men's HIV Prevention Programs?

Eric Roth<sup>1</sup>, Zishan Cui<sup>2</sup>, Kiffer G. Card<sup>2,3</sup>, Nathan J. Lachowsky<sup>2,4</sup>, Ashleigh Rich<sup>1,5</sup>, David Moore<sup>1,5</sup>, Robert S. Hogg<sup>1,3</sup>

1. Centre for Addiction Research of BC, University of Victoria, 2. B.C. Centre for Excellence in HIV/AIDS, Vancouver, BC; 3. Faculty of Health Science, Simon Fraser University, Burnaby, BC 4. School of Public Health and Social Policy, University of Victoria, Victoria, BC. 5. Faculty of Medicine, University of British Columbia, Vancouver, BC

## Background

Past gay and bisexual men's (GBM) research used sexual partner number as a **proximate** HIV risk variable, resulting in intervention programs focused on partner reduction<sup>1</sup>. We asked if: 1) partner number remains associated with previously cited HIV risk factors, and 2) considering **distal** variables underlying partner numbers is important.

## Materials and Methods

**Materials:** Cross-sectional data from the Momentum Health Study, a prospective cohort study of GBM, aged >16 from Metro Vancouver recruited by Respondent Driven Sampling between February 2012 and February 2014 comprised our data set. A total sample of 719 men were included.

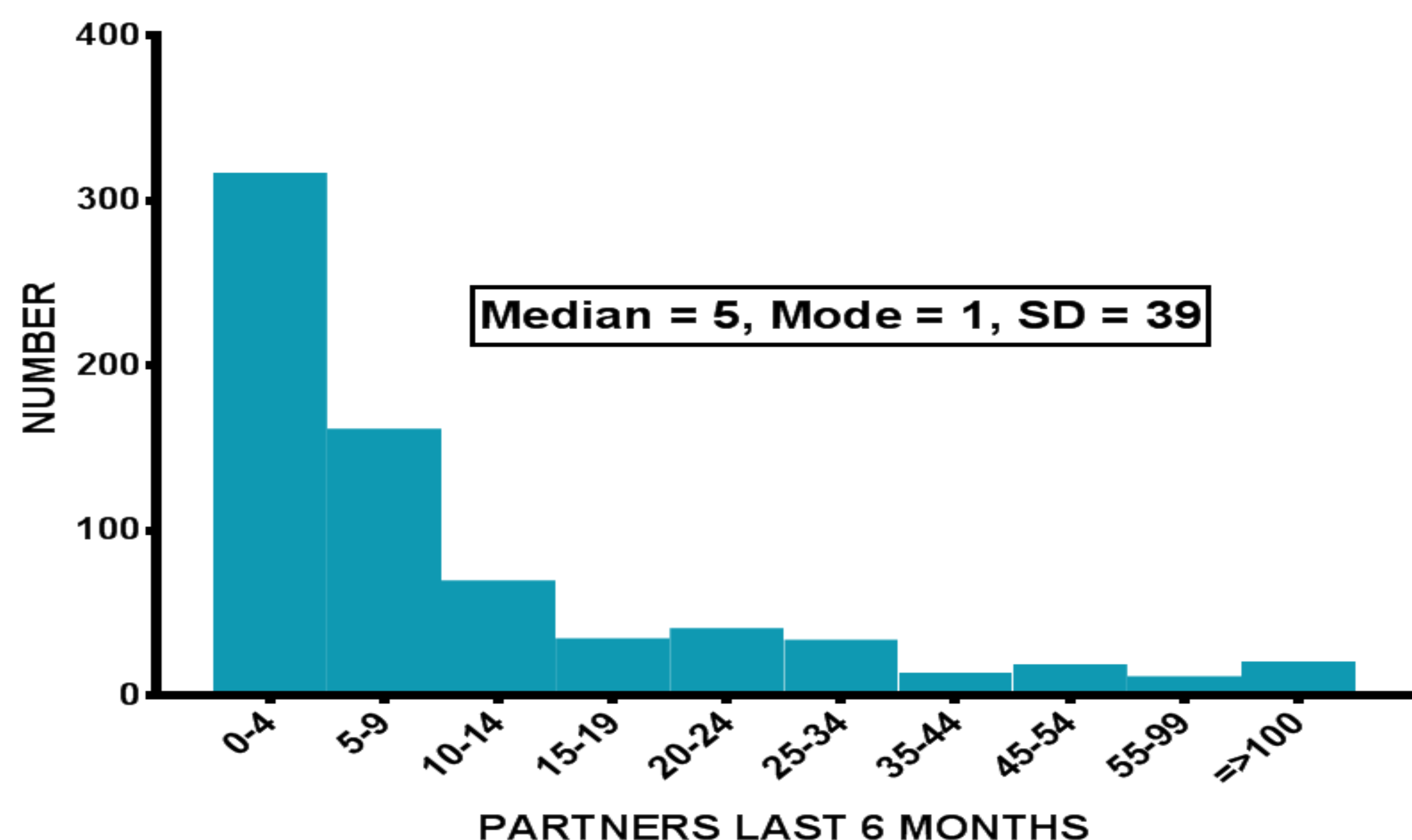
**Study Variables.** The dependent variable was number of male sexual partners participants reported in the past 6 months. Psycho-social scales, socio-demographic, and substance use variables for the same time period formed independent variables.

**Statistical Analysis.** Because of the non-normal distribution of sexual partners (See **Figure 1**) the SAS® v. 9.4 PROC GENMOD sub-routine generated a multivariable negative binomial regression model using a backwards selection with Type-III p-values and AIC minimization. This quantified associations between previously cited GBM HIV risk factors including group event attendance, accepting money for sex, working as a male escort, fisting, sex toys, condomless anal sex with a sero-discordant and/or unknown serostatus partner, and popper, crystal methamphetamine, erectile dysfunction drug, Ecstasy/MDMA use, and sexual partner number.

## Results

**Sample Statistics:** The sample was predominantly White, and 85% had completed high school. Median age was 33 years (Q1-Q3: 26 - 47) and RDS-adjusted HIV prevalence was 23.0%. **Figure 1** shows the descriptive statistics for the sexual partner number distribution. These reflect a small number of men with many partners in the tail of the distribution, e.g. mode = 1, but standard deviation = 39.

Figure 1. DISTRIBUTION OF MALE SEX PARTNERS FOR PAST 6 MONTHS



**Multivariable Results Table 1.** Statistically significant ( $p < .05$ ) Adjusted Risk Ratios showed positive associations with increasing number of male sex partners and previously cited risk factors. Results also suggest differing rationale for partner numbers, e.g. economic rewards via commercial sex work, cultural norms for group sex events, and psychosocial factors, represented by sexual sensation seeking.

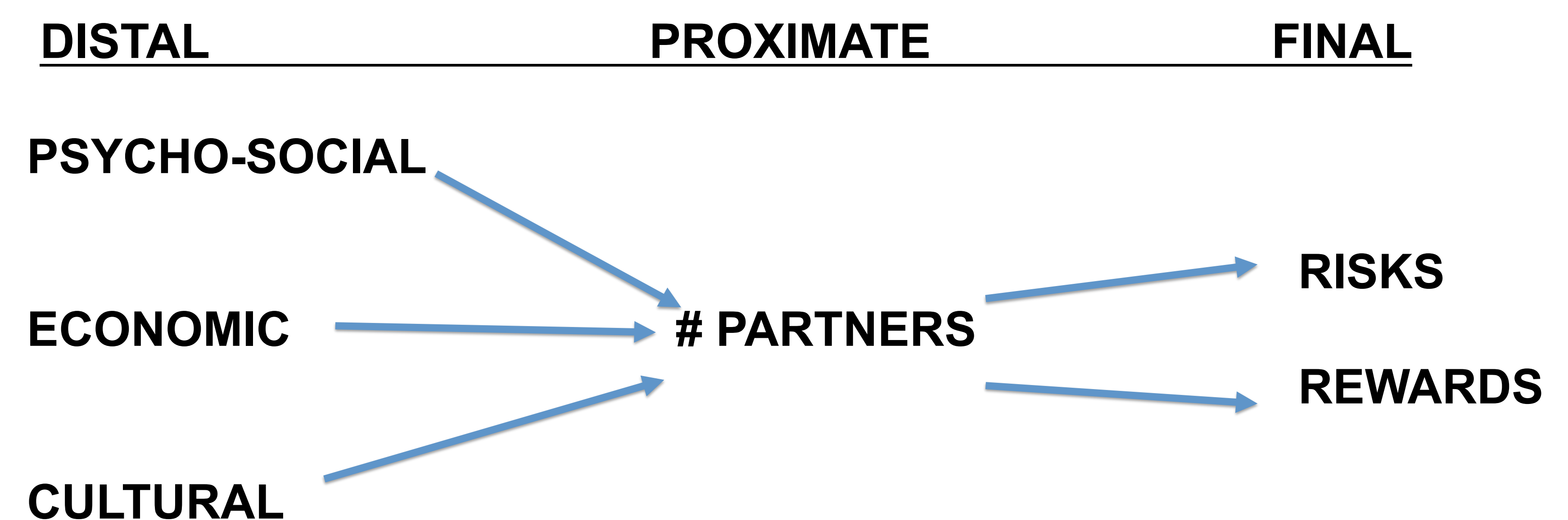
TABLE 1. STATISTICALLY SIGNIFICANT VARIABLES FROM NEGATIVE BINOMIAL ANALYSIS. FOR CATEGORICAL VARIABLES "NO" RESPONSES WERE THE REFERENT GROUP (ARR = 1.0) .

VARIABLE	ADJUSTED RISK RATIOS (95% CI)
Received Money for Sex (yes)	2.45 (1.90 3.17)
Sensation Seeking Scale (continuous)	1.03 (1.01 1.06)
Poppers Past 6 Months (yes)	1.20 (1.02 1.41)
Crystal Meth Past 6 Months (yes)	1.61 (1.31 1.98)
Group Sex Party Past 6 Months (yes)	2.45 (1.90 3.17)
Used Sex Toys (yes)	1.30 (1.04 1.63)
Versatile Anal Sex Preference (yes)	1.29 (1.08 1.54)
Condomless anal sex w/ sero-discordant/unknown status partner (yes)	1.25 (1.04 1.52)
Ecstasy/MDMA Use Past 6 Months (yes)	1.20 (1.00 1.44)

## Conclusions

Analysis showed that multiple HIV risk factors were associated with increasing number of male sex partners. As such, sexual partner number remains an important **proximate** risk variable explaining "how" HIV risk can be affected. In addition, we think it important to consider **distal** variables, addressing the "why" aspect of partner numbers, as shown in **Figure 2**. This perspective allows consideration of rationales, risks, and rewards associated with sexual partner distributions.

FIGURE 2. DISTAL, PROXIMATE AND FINAL VARIABLES



<sup>1</sup>Glick, S. et al. (2012). A comparison of sexual behavior patterns among men who have sex with men and heterosexual men and women. *Journal of Acquired Immune Deficiency Syndromes*, 60(1), 83-90.