

# Understanding HIV Risk Behaviors among Young Men in South Africa: A Syndemic Approach

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## OVERVIEW

- Statistical interactions used to test the utility of the syndemic framework in understanding HIV risk behaviors in a sample of young men in South Africa). The interaction between binge drinking & violence was associated with higher odds of reporting 2+ sex partners. Also, being food insecure and engaging in violence increased the odds of engaging in transactional sex.

## INTRODUCTION

- Young men in South African experience a substantial burden of psychosocial and structural levels problems that are associated with HIV/AIDS
- Each of these problems can interact synergistically to magnify HIV/AIDS burden – defined as ‘syndemic theory’
- The aim of this analysis was to apply the ‘syndemic theory’ in a sample of young men in South Africa.

## METHODS

- Data from the Soccer Study – an ongoing community intervention RCT to engage men in HIV testing and reduce substance use with soccer and vocational programs in informal settles around the Western Cape, South Africa.

### ➤ Outcome (HIV Risk behaviors):

- Multiple sex partner (2+ different sex partners in the past 3 months)
- Transactional sex (being paid for sex w/money or gifts in the past 3 months)

### ➤ Independent variables (syndemic problems):

- Binge drinking (5+ drinks in one occasion in the past 3 months)
- Polydrug use (any marijuana, meth or methaqualone in the past 3 months)
- Significant depression symptoms (CESD score 16+)
- Violence (any physical fights, hitting women, forced sex, arrested or jailed in the past 3 months)
- Food insecurity (Gone to bed hungry in the past week).

### ➤ Covariates

- Age, years of schooling, vocational training, relationship status and monthly income.

### ➤ Statistical Analysis

- Two multivariable logistic regression models was used to determine independent associations of each of the syndemic problems on HIV risk behavior.
- Next, two-way interaction terms among the syndemic problems were included in both models.
- Interaction were on an additive scale and tested whether the combined effects of two of the syndemic problems is larger than the sum of the individual effects.
- Two measures of interaction were compared RERI (relative excess risk due to interaction) and AP (attributable proportion).

## RESULTS

**Table 1. Characteristics of young men in the study**

	N	(%)
<b>Total</b>	1233	(100)
<b>Age</b>		
18 to 24 yrs.	836	(67.8)
24+ yrs.	397	(32.2)
<b>Syndemic problems</b>		
Binge drinking	690	(56.0)
Polydrug use	136	(11.0)
Depression	448	(36.3)
Violence	142	11.5
Food insecurity	705	57.2
<b>HIV Risk behaviors</b>		
Transactional sex	162	(13.1)
Multiple (2+) sex partners		
0 to 1	604	(49.0)
2+	629	(51.0)

**Table 2. Multivariable logistic regression among syndemic problems and HIV risk behaviors**

	Dependent variables	
	2+ sex partners AOR (95% CI)	Transactional sex AOR (95% CI)
<b>Age (vs. 24+ yrs.)</b>		
18 to 24 yrs.		0.65 (0.45, 0.91)***
<b>Years of schooling (vs. Grade 9 or less)</b>		
Grade 10 to 11	0.91 (0.68, 1.22)	-
Grade 12 or more	0.67 (0.48, 0.92)*	-
<b>Vocational training</b>	-	2.13 (1.51, 3.01)***
<b>Relationship status (vs. Single)</b>		
Regular partner but not living together	2.08 (1.43, 2.88)***	-
Living together/married	1.26 (0.70, 2.27)	-
<b>Monthly income (vs. 0 to 499 Rand)</b>		
500 to 1000 Rand	1.15 (0.86, 1.54)	-
1001 to 2000 Rand	1.70 (1.17, 2.47)**	-
2000 Rand and above	1.70 (1.12, 2.58)*	-
<b>Recent HIV test</b>	1.36 (1.06, 1.74)*	-
<b>Food insecurity</b>	1.16 (0.90, 1.50)	1.55 (1.09, 2.23)*
<b>Binge drinking</b>	3.02 (2.37, 3.86)***	-
<b>Polydrug use</b>	1.37 (0.92, 2.02)	1.64 (1.20, 2.64)*
<b>Depression</b>	0.63 (0.48, 0.82)***	-
<b>Violence</b>	1.68 (1.13, 2.50)*	1.60 (1.00, 2.54)*
<b>Binge drinking X Violence</b>	5.10 (3.13, 8.29)***	-
<b>Food insecurity X Polydrug use</b>	-	2.89 (1.63, 5.30)**
<b>Food insecurity X Violence</b>	-	2.73 (1.54, 4.84)**

Sample size=1,233

\*p <.05; \*\*p <.01; \*\*\*p <.001

Note- AOR=Adjusted odds ratio; CI=Confidence interval

## RESULTS (CONTD)

- Interactions between binge drinking and violence on higher odds of 2+ sex partners compared to those with neither factors was statistically significant (OR=5.09; p<.001)
- In addition, the interaction between food insecurity and violence on increased odds of engaging in transactional sex was statistically significant (AOR=2.01; p<.001)
- In both findings, the RERI and AP > 0, indicating a positive and greater than additive interaction
- No other pairwise interaction was statistically significant.

## CONCLUSIONS

- Our findings indicate the potential utility of a syndemic framework in understanding HIV risk behaviors in young men living in South Africa.
- Binge drinking, violence perpetration and food insecurity appear to be prominent syndemic problems on HIV risk behaviors
- Findings suggest that HIV prevention programs focused on young men in South Africa that address multiple syndemic problems simultaneously may achieve greater preventive impact than addressing either problems alone
- **Strengths**
  - Large sample and among the first to apply syndemic framework in young men in South Africa.
- **Limitations**
  - Cross sectional
  - Self reported assessment of all measures
  - Did not assess other sociocultural factors (e.g. cultural norms) potentially associated with HIV risk behaviors.

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