



Syndemic Theory and Male Same Sex Intimate Partner Violence: An Urban/Non-Urban Comparison

Matt L. Pimentel, An-Lin Cheng, Patricia J. Kelly

School of Nursing and Health Studies, University of Missouri-Kansas City, Kansas City, USA

Email: matt_pim2004@yahoo.com

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Abstract

Background: The majority of research with gay men has been conducted in urban populations, with minimal work on partner violence in non-urban (suburban and rural) settings. Syndemic theory, the concept that negative health outcomes are increased with the addition of each new deleterious health variable, has been used to understand partner violence. The aim of the study was to determine differences in prevalence and associated factors of male same-sex intimate partner violence (MSSIPV) among gay men residing in urban versus non-urban settings. **Methods:** A cross-sectional survey was conducted with gay men in the state of California. Variables were identified from syndemic theory and included exposure to intimate partner violence, depression, sexual compulsivity, poly-drug use, and childhood sexual abuse. **Results:** Demographic differences were evident between urban and non-urban dwelling gay men. Rates of lifetime victimization and perpetration of MSSIPV between urban and non-urban gay men were not significant. In regard to syndemic variables, only childhood sexual abuse (CSA) showed any significant differences between the two populations. Being a victim of CSA increased the odds of being a lifetime victim of MSSIPV by a factor of five for non-urban participants and increased the odds of being a victim by a factor of three for all subjects. Moreover, being a victim of CSA increased the odds of being a lifetime perpetrator of MSSIPV by a factor of three for non-urban participants. **Conclusion:** This appears to be the first of its kind study differentiating between urban and non-urban MSM. More research is needed to verify our findings of demographic and syndemic differences between these two populations in order to fully understand and address the needs of all members of the Lesbian, Gay, Bisexual, and Transgender (LGBT) community.

Keywords

Same Sex Intimate Violence, Non-Urban Populations, Urban Populations, Gay Men

Subject Areas: Nursing

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1. Background

Intimate partner violence affects couples in all population groups, including men who have sex with men (MSM), (a category including gay and bisexual men as well as men who do not so identify, but do intermittently have sex with men) [1]. Male same-sex intimate partner violence (MSSIPV) has been defined as “a pattern of violent and cohesive behaviors where by a gay man seeks to control the thoughts, beliefs, or conduct of an intimate partner or to punish the intimate [partner] for resisting the perpetrator’s control” ([2], p. 17). Among gay men, prevalence rates of emotional, physical, and/or sexual MSSIPV vary between 14% - 62% [3]. In the United States, between 1.8% and 4.9% of the male population self-identify as either gay or bisexual, suggesting that 956,000 men are exposed to MSSIPV [4]. Over the past twenty years, a variety of studies have examined the prevalence of MSSIPV and found greatly varying results, a result of differencing definitions of self-identity, lack of random samples, and lack of standardized instruments [5].

1.1. Syndemic Theory

A syndemic is a combination of interrelated variables that explain negative health outcomes for certain populations of individuals or subgroups [6]. The term was further enhanced by researchers while describing gay men or MSM, where certain variables would in combination, be more deleterious for gay men’s healthcare outcomes than just compared to one variable alone [7]. Singer and colleagues originally developed the idea of a syndemic in his examination of the co-occurrence of substance abuse, violence, and HIV/AIDS, among Puerto Rican men in Hartford, Connecticut [8]. These factors which worked synergistically, as an example, substance abuse and HIV/AIDS in this population mutually reinforced each other and made the rate of each more extreme than if they had occurred alone [6]. Factoring in violence increased each variable even more. Other syndemics have been suggested for the confluence of risk behaviors found in certain Hispanic populations and for the problems facing women in the criminal justice system [9] [10]. Acknowledging the existence of a syndemic allows researchers and clinicians to focus on the interactions of these factors and to provide comprehensive interventions.

1.2. Non-Urban Dwelling Gay Men

While large numbers of young gay men approach urban areas for acceptance, social support, and vital services, many also remain in non-urban (suburban and rural) areas, in which there is limited information or services for MSSIPV abuse [11]. Living in non-urban areas can leave gay men in physical isolation, without the vital social support of a large LGBT community [12]. Many of these areas are socially conservative, with the majority of the residents supporting anti-gay views and strict limitations on LGBT rights [13].

In many non-urban communities, gay men generally are not “out” and, out of necessity, develop a number of coping mechanisms to hide their sexual orientation, including marriage to a female, homosexual behavior on the “down low,” and “hooking up” with men in urban areas, local parks, bookstores, and vis-à-vis the internet [14]. Unfortunately, meeting sexual partners online and covert sexual activity are associated with higher rates of unprotected anal intercourse and drug use [15]. Partners procured from internet web sites tend to be sexually compulsive and willing to participate in high-risk sexual activity [16]. The gay men who take part in covert sexual activities are more internally homophobic and less “out,” both factors associated with MSSIPV [17].

Few studies have focused on the non-urban (suburban and rural) prevalence of MSSIPV. Limiting our understanding of MSSIPV in non-urban populations is the unfortunate function that studies done in rural areas tend to have small sample sizes, often with less than 50 participants, because recruitment of gay men is a challenge in these areas [11]. Technologies are now available to enlarge sample size through internet and digital sampling [18]. An initial step in addressing this gap is this current descriptive survey to document the prevalence of MSSIPV, demographic information, and correlates in a population of non-urban (suburban and rural) gay men. The goal of this current study was to use syndemic theory to understand the factors associated with MSSIPV in a sample of non-urban gay men and comparing them to urban dwelling gay men. The aim of the study was to compare rates and correlates of MSSIPV among gay men living in urban and non-urban communities.

2. Methods

A cross-sectional survey was conducted to determine rates of MSSIPV and its correlates in several non-urban and urban counties of California. The study area included respondents from the following counties: San Luis

Obispo, Santa Barbara, Monterey, Fresno, Kern, Kings, Tulare, Madera, Ventura, Los Angeles, San Diego, San Francisco, and Marin. Cities with populations over 100,000 were considered urban, populations from 50,000 - 100,000 were considered suburban, and city populations under 50,000 were considered rural. Permission to conduct the study was obtained from the Institutional Review Board of the University of Missouri-Kansas City.

2.1. Sampling

The sample for this cross-sectional survey was gathered through a face-to-face survey conducted at a regional Gay Pride Festival held in a rural/suburban area of California, supplemented by online surveys from social media sites. Because of the limited number of acknowledged gay men/MSM at any venue who would be available for study participation, the use of diverse sampling strategies (such as this one) is acceptable for studying this population [19]. Inclusion criteria were men who were 1) over the age of 18, 2) in a current or past MSM cohabitating relationship with another man, 3) able to read and understand English, and 4) residing in the counties of interest. Exclusion criteria included stated difficulty in answering questions about their personal life.

The sample included 406 gay, bisexual, or men who have sex with men (MSM) living in the State of California. Using the recommendation of Polit and Beck [20] of 20 subjects per variable, with four variables plus an additional 50 subjects, this sample size was adequate to answer the research questions. Since the minimum of 130 subjects were required for adequate power. Since 406 is larger than 130, the power was adequate.

2.2. Measures

Instruments to assess variables of syndemic theory for the specific problem of MSSIPV were used for this study. Demographic data included income, age, education level, race, ethnicity, HIV-infection status.

Depression was measured with the twenty-item CES-D or Centers for Epidemiological Studies Depression scale. The CES-D has been widely used and has questions such as, “I thought my life had been a failure,” and, “my sleep was restless.” This instrument has an alpha of 0.87, indicating strong reliability [21]. A total score of 16 or greater indicated significant symptoms of depression [22].

Childhood sexual abuse (CSA) was measured with one question: “Did anyone take advantage of you sexually who was at least 5 years older than you when you were 16 and under?” [23].

Poly-drug use was measured and defined with one question: “Have you used 3 or more recreational drugs in the past 90 days (meth, cocaine, marijuana, crack, Ecstasy, Ketamine, poppers, LSD, or someone else’s pharmaceuticals, etc.)” [23].

Sexual compulsivity was assessed with the ten-item Sexual Compulsivity Scale, which has been tested on many gay men and has an alpha of 0.90 [24]. The scale uses a four-point Likert scale for responses and includes items such as, “my sexual appetite has gotten in the way of my relationships.” Scores of 24 or greater indicate compulsivity [23].

Physical assault as either a victim or a perpetrator of IPV, the primary outcome variables for MSSIPV, was measured with the eighteen-item, eight-point Likert scale, for physical assault and injury components of the revised Conflicts Tactics Scale-2 [25] [26]. Lifetime rates were utilized. This subscale has an alpha of 0.86 [27].

2.3. Data Analysis

IBM SPSS (Version 22.0) software was used for data analysis. Descriptive statistics were used to summarize demographics and frequencies of all variables. Student *t*-tests and Chi-square (X^2) tests were used to compare differences in syndemic-related variables between urban and non-urban populations. Logistic regression was conducted on the entire sample to assess whether the four syndemic predictor variables of depression, CSA, poly-drug use, and sexual compulsivity, predicted being either a victim or a perpetrator of MSSIPV. Separate logistic regression models were also conducted for urban and non-urban population.

2.4. Procedures

Potential participants were approached at the “Gay Pride in the Plaza” event in San Luis Obispo, CA, held in July 2013. Interested participants provided contact information and an email was sent after the event to confirm interest and provide a link to the internet survey through the data collection software program, Survey Monkey (SM).

3. Results

The sample consisted of 406 gay, bisexual and MSM who ranged from 18 to 79 years of age (mean = 38.28, SD = 14.67; 138 (34%) lived in an urban area and 268 (66%) in a non-urban (suburban or rural) area. Compared to the local population, the sample was ethnically diverse, with 260/64.0% identifying as non-Hispanic White, 78/19.2% as Hispanic, and 68/16.7% as African-American, multiracial, or other. Income levels had a normal distribution, with 111/27.3% earning less than \$24,999, 108/26.6% earning between \$25,000 - \$49,999, 80/19.7% earning \$50,000 - \$79,999, and 81/19.9% earning \$80,000 or more. Only 39/9.6% had a high school diploma or less, 120/29.6% had some college, 152/37.4% had graduated from college, and 69/17.0% had a post graduate degree. The majority of the sample was HIV-negative 331/81.5%; however, 34/8.4% was HIV-positive, and 15/3.7% reported “don’t know.” Urban and non-urban participants were significantly different in income ($p = 0.026$) and education ($p = 0.003$) levels. These results are presented in **Table 1**.

Table 1. Demographics of sample.

	Total N = 406	Urban N = 138/34%	Rural/suburban N = 268/66%	<i>p</i>
Age				
21 and under	46/11.3%	9/6.5%	37/13.8%	
22 - 30	110/27.1%	41/29.7%	69/25.7%	
31 - 40	73/18.0%	27/20.0%	46/17.2%	0.086
41 - 50	77/19.0%	32/23.2%	45/16.8%	
51 and over	100/24.6%	29/21.0%	71/26.5%	
Race				
Non-Hispanic White	260/64.0%	87/63.0%	173/64.6	
Hispanic	78/19.2%	28/20.3%	50/18.7	0.938
African-American	11/2.7%	3/2.2%	8/3.0%	
Multiracial/other	57/14.0%	20/14.5%	37/13.8%	
Income				
0 - \$24,999	111/27.3%	29/21.0%	82/30.6%	
\$25,000 - \$49,999	108/26.6%	41/29.7%	67/25.0%	0.026
\$50,000 - \$79,999	80/19.7%	39/28.3%	41/15.3%	
\$80,000 and up	81/20.0%	29/21.0%	52/19.4%	
Education				
High school or less	39/9.6%	7/5.1%	32/11.9%	
Some college	120/30.0%	35/25.4%	85/31.7%	0.003
College graduate	152/37.4%	63/45.7%	89/33.2%	
Postgraduate	69/17.0%	33/23.9%	36/13.4%	
HIV status				
Positive	34/8.4%	13/9.4%	21/7.8%	
Negative	331/81.5%	123/89.1%	208/77.6%	0.167
Don't know	15/3.7%	2/1.4%	13/4.9%	

Rates

The rate of lifetime physical MSSIPV among participants was 139/34.2%, while lifetime physical perpetration was 123/30.3%. **Table 2** shows these results.

The bivariate analysis (see **Table 3**) found that only CSA was significant when comparing participants living in urban and non-urban areas ($p = 0.040$). The other syndemic variables of depression, poly-drug use, sexual compulsivity, and MSSIPV for victim and perpetrator were not significant when comparing those who reside in urban areas versus non-urban areas.

When considered together, the four predictor variables (see **Table 4**) were statistically significant in predicting being a *victim* of lifetime physical MSSIPV ($X^2 = 13.126$, $df = 4$, $N = 305$, $p = 0.011$). When considered together, no predictor variables (See **Table 5**) were significant in predicting whether a person was a *perpetrator* of lifetime physical MSSIPV ($X^2 = 6.198$, $df = 4$, $N = 305$, $p = 0.185$).

Table 6 presents the odds ratios, which suggest that the odds of victimization increased 3.034 times when being a victim of CSA (OR = 3.034, 95% CI 1.463, 6.294) for all participants. These odds were greater for non-urban participants who had a 5.22 times greater chance of reporting victimization of MSSIPV when having a history of CSA (OR = 5.22, 95% CI 2.194, 12.42).

There was a slight significance between higher self-reports of depression and lifetime victimization, though not significant enough when the population was split between urban and non-urban participants. There were no significant associations between MSSIPV victimization and poly-drug use nor sexual compulsivity.

Table 2. Lifetime physical/injury & victim/perpetrator of MSSIPV.

MSSIPV	N/%
Lifetime physical/injury victim of MSSIPV	139/34.2%
Lifetime physical/injury perpetrator of MSSIPV	123/30.3%

Table 3. Bivariate scores on syndemic-related variables.

Scale	Total N = 406	Urban N = 138/34%	Rural/suburban N = 268/66%	<i>p</i>
Depression	N = 305	N = 105	N = 200	
≥ 16	101/33.1	38/36.2%	63/31.5%	0.408
Under 16	204/66.9	67/63.8%	137/68.5%	
Childhood sexual abuse	N = 314	N = 107	N = 207	
Yes	44/14.0	9/8.4%	35/16.9%	0.040
No	270/86.0	98/91.6	172/83.1%	
Poly-drug use	N = 314	N = 107	N = 207	
Yes	52/16.6	18/16.8%	34/16.4%	0.928
No	262/83.4	89/83.2%	173/83.6%	
Sexually compulsivity	N = 406	N = 138	N = 268	
Score of ≥ 24 (yes)	137/33.7	48/34.8%	89/33.2%	0.751
Score < 24 (no)	269/66.3	90/65.2%	179/66.8%	
MSSIPV-victim	N = 406	N = 138	N = 268	
Yes	139/34.2	47/34.1%	92/34.3%	0.957
No	267/65.8	91/65.9%	176/65.7%	
MSSIPV-perpetrator	N = 406	N = 138	N = 268	
Yes	123/30.3	39/28.3%	84/31.3%	0.522
No	283/69.7	99/71.7%	184/68.7%	

The logistic regression results were not significant for perpetrator of all subjects of MSSIPV. However, non-urban participants (see [Table 7](#)) had a 3.343 times greater chance of being a perpetrator of MSSIPV, (OR = 3.343, 95% CI 1.339, 8.344).

4. Discussion

The rates of MSSIPV and syndemic variables range widely in research studies. Our survey with a convenience sample of MSM that were recruited at a gay pride event found an overall rate of lifetime victimization of MSSIPV at 34.2% and a lifetime perpetration rate of 30.2%, both of which fall into the range found in prior studies and meta-reviews [28]. Comparing rates of MSSIPV is challenging because many studies use different instruments, different definitions and time periods (e.g., one-year vs. lifetime), and enmesh physical, emotional, and sexual abuse, into one value of MSSIPV. In this study, we focused on lifetime rates of physical and injury of MSSIPV victimization and perpetration, and further differentiated between urban (victim = 34.1%; perpetrator = 28.3%) and non-urban (victim = 34.3%; perpetrator = 31.3%) rates. The combination of these specific syndemic variables were collectively significant for lifetime MSSIPV victimization but not for lifetime MSSIPV perpetration for all participants. However, that was not the focus of this study. We were looking at some of the individual

Table 4. Results of victimization of MSSIPV.

Type	Chi-square	df (degrees of freedom)	N	p
MSSIPV victimization	13.126	4	305	0.011

Table 5. Results of perpetration of MSSIPV.

Type	chi-square	df (degrees of freedom)	N	p
MSSIPV perpetration	6.198	4	305	0.185

Table 6. Results of logistic regression for victimization.

Variable	Total sample odds ratio/confidence intervals N = 305	Urban participants odds ratio/confidence intervals N = 105	Non-urban participants odds ratio/confidence intervals N = 200
Depression	1.026 [1.001, 1.052] [*]	1.014 [0.976, 1.053]	1.033 [0.999, 1.069]
CSA	3.034 [1.463, 6.294] [*]	0.435 [0.048, 3.963]	5.22 [2.194, 12.42] ^{**}
Poly-drug	0.748 [0.320, 1.752]	1.822 [0.539, 6.159]	0.394 [0.107, 1.453]
Sexual compulsivity	0.913 [0.549, 1.517]	1.062 [0.509, 2.213]	0.787 [0.384, 1.612]
Constant	0.142	0.163	0.134

^{*} $p < 0.05$, ^{**} $p < 0.001$.

Table 7. Results of logistic regression analysis for perpetrator.

Variable	Total sample odds ratio/confidence intervals N = 305	Urban participants odds ratio/confidence intervals N = 105	Non-urban participants odds ratio/confidence intervals N = 200
Depression	0.997 [0.968, 1.028]	0.999 [0.976, 1.053]	0.993 [0.955, 1.032]
CSA	2.217 [0.977, 5.031]	0.000	3.343 [1.339, 8.344] ^{**}
Poly-drug	0.591 [0.215, 1.656]	0.958 [0.539, 6.159]	0.533 [0.146, 1.951]
Sexual compulsivity	1.406 [0.815, 2.425]	1.639 [0.509, 2.213]	1.322 [0.641, 2.727]
Constant	0.079	0.060	0.088

^{*} $p < 0.05$, ^{**} $p < 0.001$.

variables of syndemic theory. The lack of significant differences in rates of victimization and perpetration between these two populations may provide a first step in identifying and discussing other differences between those that live in urban vs. rural/suburban areas. These results can be construed as encouraging so resources and interventions can be similar from urban to non-urban, allowing researchers to focus efforts on effective interventions rather than dissimilarities.

Overall rates of CSA were 14%, though significantly ($p = 0.040$) different between urban (8.4%) and non-urban (16.9%) populations. The total rate of CSA was lower in our study than in previous studies [29] [30]. But, like MSSIPV rates of abuse, response rates are contingent on the type of questions asked. Our study used a single question to determine rates of CSA while other studies used multiple questions for determination [30] [31].

We found that amongst the syndemic variables, only CSA correlated highly with lifetime victimization of MSSIPV. This correlation is consistent with other studies of lifetime and 12-month history of MSSIPV and CSA [32]-[35]. Logistic regression analysis showed that non-urban gay men had significant differences from urban gay men for both victim and perpetrator rates. Since we are not familiar of any other study that differentiates these two populations, it is difficult to accurately interpret these results. One possible reason could be the difference of social support for young gay men in rural areas compared to urban areas, where many gay men in the former being “guarded” about their sexual orientation identity [11]. CSA may be discussed less in non-urban settings due to the conservative nature of the communities and stigma of sexual minority status in rural areas [36] [37].

There are several limitations to our study. As this was a cross-sectional, preliminary research study, so we cannot infer causal relationships between the variables. Convenience sample studies make results difficult to be generalized to the entire gay/MSM community. In addition, recruitment occurred data gay pride event, which suggests that potential participants had some level of acceptance of their sexuality. MSM who are recruited at such venues may be different from those in the larger MSM community, with one study finding higher rates of sexual risk behaviors and numbers of sexual partners among those who frequent such events [29]. All variables were self-reported, which introduces the possibility of differential recall or recall bias [38].

5. Conclusion

Despite these limitations, this study appears to be the first to measure many syndemic variables between urban and non-urban dwelling MSM. This information can be useful in developing targeted outreach with these two populations, and providing a launching step for future research.

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