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Final Summary Overview

Research & Evaluation on Victims of Crime (STRiV Secondary Data Analyses)

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BACKGROUND

Adolescent relationship abuse (ARA), also known as teen dating violence, is a serious and well-documented public health problem in the United States.[1] While there is a substantial body of literature on the etiology of ARA victimization and perpetration, much of the research focuses on individual-level risk factors.[2] Given that patterns of relationship violence typically emerge during adolescence and levels increase over time[3], it is important to examine whether aspects of the neighborhood environment are components to consider in designing ARA prevention approaches.[3] Of the studies in this area, many have examined the impact of demographic and structural characteristics—e.g., rates of poverty, educational attainment, home ownership, etc.—on ARA risk.[4-6] According to a review by Johnson et al. on the relationship between neighborhood characteristics and ARA among adolescents and young adults, there is some evidence to suggest that poverty levels are associated with physical ARA.[7] Another line of inquiry has centered on the influence of neighborhood disorder—i.e. high visibility of social disorder, as defined by violent crime and other illegal behavior—on ARA risk. In the Johnson et al. review,[7] the vast majority of the studies examining the impact of neighborhood disorder—which were based on self-report data collection methods featuring varying language to define the concept—found an association with physical ARA perpetration.[7] This association could be explained by the impact of disordered neighborhoods on the youth development, particularly with regards to antisocial behavior. Chronic exposure to violence can also desensitize youth to violence and predispose youth to violent responses at the slightest hint of confrontation.[8] However, within the small body of literature on neighborhood-level determinants (e.g., income inequality, concentrated disadvantage, etc.) of ARA,[9-15] results are conflicting. For example, neighborhood collective efficacy has been associated with lower levels of dating violence perpetration[16] as well as higher levels of dating violence perpetration,[15] and in some research was not associated with dating violence at all.[13] Additionally, although there is a strong overlap in ARA perpetration and victimization,[17] results are mixed depending on if the outcome of interest is ARA victimization, perpetration, or both. For example, neighborhood disorder has been found to be associated with ARA perpetration, but not ARA victimization.[9]

Despite the mixed evidence, there is some indication that community contexts may play a role in aggressive behavior in adolescent dating relationships, as well as other gendered aggression within this age group such as sexual harassment (SH). Further research regarding neighborhood factors may reveal important structural predictors that could help to identify those adolescents at risk for involved in ARA and harassing behaviors, either as victims or perpetrators. The purpose of the STRiV secondary data analyses (STRiV-SD) was to generate new information among understudied at-risk populations about the prevalence and risk factors for ARA. We sought to identify those neighborhood-level factors that signaled disadvantage for adolescents and to investigate the role of these factors in adolescent experiences of harassment and abuse by dating partners and peers. Considering the potential for increased risk, our analyses focused on how neighborhood disadvantage and interpersonal crime affect sexual harassment, indirect abusive behavior by dating partners, and direct ARA perpetration and victimization. In our models, we investigated the extent to which distal factors in the social ecology (e.g., neighborhood factors) are predictors of these outcomes, adjusting for individual sociodemographics and attitudes.

To better understand neighborhood-level factors associated with ARA and SH, we conducted secondary data analyses with the National Survey on Teen Relationships and Intimate Violence (STRiV) with additional neighborhood-level measures from other sources linked at the respondent level. STRiV is an ongoing cohort study designed to understand the prevalence of ARA perpetration and victimization among youth in the U.S. The study began enrolling participants in October 2013, collecting completed baseline surveys from a weighted sample of 2,354 youth 10-18 years old and a baseline survey of a parent or caregiver of the STRiV youth. In October 2014, the baseline respondents were invited to participate in a second survey, resulting in a weighted sample of 1,471 wave 2 youth completes. The wave 3 data collection (October 2015 – May 2016) resulted in a weighted sample of 1,602 surveys and the subsequent wave 4 data collection (October 2016 – July 2017) resulted in a weighted sample of 1,536 surveys.

METHODS

The four waves of STRiV surveys were completed using a high-security web-based survey. The online format was appropriate for the target age group, who are generally well versed in computer use. The sensitive nature of the survey content also requires the utmost privacy and confidentiality. An online format avoided the introduction of bias due to interviewer gender and maximized flexible scheduling for survey completion.

STRiV Data Source

STRiV study participants were drawn randomly from the KnowledgePanel*, a national household address-based probability sample (50,000+ members age 18 and older) covering approximately 97% of U.S. households.[18,19] Further information about the KnowledgePanel recruitment and methods can be found in other publications.[17] To assure national representativeness, we applied the KnowledgePanel statistical weights.[20] The panel base weight takes into account a range of sampling and non-sampling error (e.g., non-response to panel recruitment and panel attrition), and was employed in a probability proportion to size (PPS) selection method for drawing sub-samples from KnowledgePanel. The KnowledgePanel team used U.S Census demographic and geographic distributions to conduct a sample specific post-stratification process (applying an iterative raking procedure) to adjust for survey nonresponse and elements related to the study-specific sample design (oversampling households with youth). This resulted in a weighted sample distribution at baseline of STRiV (wave 1) that approximates the 2010 U.S. Census estimates, and adjusts for nonresponse at each subsequent wave. The individual-level sample description is provided in Appendix Table 1.

Neighborhood and Crime Data Sources

To achieve our study objectives of understanding the relative disadvantage that may be introduced by characteristics of the STRiV youth respondents' residential neighborhoods, we merged in community level data from two sources. The first auxiliary source we accessed was the 2013 American Community

* The KnowledgePanel was operated by GfK over the period 2011-2018, and by Ipsos from 2018-present.

Survey (ACS), a national ongoing survey by the U.S. Census Bureau. The ACS is a leading source of detailed information about American communities, covering a range of topics, including income, employment, and housing characteristics.[21] We used the 2013 data to investigate the neighborhood context of STRiV respondents contemporaneous with their baseline survey responses. ACS data yielded measures of neighborhood income inequality, neighborhood-level gender equality, and concentrated neighborhood disadvantage (details below). The second auxiliary source provided a measure of neighborhood crime. We merged an indexed measure of neighborhood violent crime (details below), sourced from geocoded Federal Bureau of Investigation (FBI) Uniform Crime Report (UCR) data and compiled as the CrimeRisk database (an aggregate variable averaged of the five-year period 2009-2013) by Applied Geographic Solutions. The CrimeRisk database compiles the rate of major crime types summarized geographically. All four neighborhood variables were operationalized at the census tract level (the smallest analytic level possible for our measures) for linkage with the STRiV survey data. The sample description at the neighborhood level is provided in Appendix Table 2.

Measures

ARA Perpetration and Victimization. ARA is consistently assessed across waves using a modified version of the Conflict in Adolescent Dating Relationships Inventory (CADRI), which captures the prevalence and type of ARA victimization and perpetration.[22] The CADRI is asked of those who reported being in a current or recent (within the past year) relationship. The scale measures overt and covert forms of violence, intimidation, and positive communication in dating relationships. Items were summed to create the incidence and frequency of different ARA measures, including sexual abuse, physical abuse, and psychological abuse.[22]

Dating Abuse-Related Stalking and Harassment. Victimization was assessed via three indicator items referencing the specified dating partners. Drawing on the Toledo Adolescent Relationship Survey (TARS) instrument,[23] respondents were asked if their dating partner had ever (yes, no) followed or spied on the respondent, damaged something that belonged to the respondent, or gone through the respondent's online accounts (Instagram, Facebook, etc.).

Sexual Harassment Perpetration. We measured sexual harassment behaviors using seven questions[24] (e.g., unwelcome sexual comments jokes or gestures, physical intimidation in a sexual way) with a three-point response scale (never, once, more than once).

Neighborhood Income Inequality. Neighborhood income inequality was operationalized as the Gini Index score. The Gini Index is a widely-used, standard measure that is publicly available from the ACS website. Data were extracted at the tract level, using aggregate five-year (2009-2013) data. Because ACS only releases the five-year aggregate data files at the tract level, the Gini measure is an approximation of actual Wave 1 (2013) measures.

Gender Equality. Drawing on prior studies,[25,26] we constructed a gender equality index (GEI) using publicly available ACS data (2009-2013). The measures on which the GEI is based are an approximation of the true wave 1 measures. The GEI is based on the female-to-male ratio of three tract-level measures: 1) income levels; 2) adults 25 years and older with four or more years of college education; and 3) individuals 16 years and older employed in management, professional, and related occupations. We used principal components analysis to create an index from these ratios. The measures loaded on a single component, with all loadings exceeding 0.5.

Concentrated Neighborhood Disadvantage was constructed from Census data based on Sampson and Graif's index of percent of residents at the tract level living in poverty, receiving public assistance, unemployed, and having less than a high school education; the index also includes the percent of female-headed households with children under 18 years old in the tract.[27]

Neighborhood Crime. We used the CrimeRisk standardized personal violent crime index (100 is the national average for personal crime) as a measure of violent crime. Items included in the index are murder, rape, robbery, assault, and burglary.

Covariates. We included several individual measures: gender stereotype attitudes,[28] alcohol and marijuana use, and sociodemographic measures (gender, age, household income, race/ethnicity). To determine the independent effects of the neighborhood-level predictors of interest, we also examined whether respondents remained as residents in the baseline census tract across the annual waves of STRiV

data collection. Preliminary analyses indicated that respondents who moved after the baseline differed on family income from those who stayed within the same tract; we controlled for residential stability (indicator of those respondents who stayed within the same tract across the four waves vs. those who moved) in all models.

Data Analysis

Analyses were conducted in SAS 9.4, which allows for the use of sampling weights, adjusts for complex sampling, and handles missing data. Panel demographic post-stratification weights were applied to adjust for both non-coverage of the U.S. population as well as participant non-response. For each analytic sample we examined the distribution of the data with and without statistical weights and ran frequencies, measures of central tendency, and measures of dispersion with study variables. Bivariate associations and multi-collinearity were investigated with cross-tabulations, comparison of means, and correlation matrices. To address our research questions, multivariate analytic models were selected.

FINDINGS

The findings for this study are reported in five manuscripts, two of which have been published,[29,30] one which has been accepted,[31] and two of which are under peer review.[32,33] In this summary report, we highlight our key findings; further detail for the manuscripts that are under peer review is available from the authors (until the point of acceptance for publication).

Okeke et al.[30] explored the longitudinal relationship between neighborhood gender equality and the prevalence of ARA perpetration and victimization at the outcome measurement three years later. Controlling for individual demographic characteristics and residential stability, male participants living in neighborhoods with higher gender equality were less likely at follow-up to report perpetrating ARA. There was no association between neighborhood gender equality and male victimization. There was also no association between gender equality at the neighborhood level and ARA perpetration or victimization reported by females.

Mumford et al.[29] used multivariate regression to assess the role of neighborhood characteristics on young males' sexual harassment perpetration, adjusting for individual sociodemographics and views on traditional gender stereotypes. Espousing traditional gender stereotypes was associated with a higher likelihood of sexual harassment perpetration, whereas living in an area of concentrated disadvantage was associated with lower likelihood of perpetration. There were no associations detected between neighborhood gender equality or crime, residential stability, or other sociodemographics and sexual harassment perpetration.

Taylor et al.[31] examined the association between ARA perpetration and victimization and neighborhood violent crime, controlling for demographic covariates. Specifically, findings from this paper indicate that there was no association detected between neighborhood violent crime rate and ARA victimization and perpetration for females and males. Results suggest that neighborhood violence does not seem to affect individual rates of ARA; in other words, ARA victimization and perpetration are found both in low and high violent crime neighborhoods.

In the first paper still under review, Okeke et al. examines whether neighborhood effects on ARA perpetration and victimization varied by gender, by household income.[32] There were no associations between race/ethnicity or income inequality and ARA victimization and perpetration in analyses conducted for the full sample. However, stratified analyses indicated that, for females, the association between income inequality and ARA victimization varied by household income.[32]

In the second paper under review, Rothman et al. examines the rate and correlates of stalking and harassment within adolescent dating relationships.[33] For boys, Hispanic ethnicity was the only covariate that was strongly associated with perpetration and/or victimization. For girls, younger age and earlier marijuana use were associated with perpetration and victimization. Neighborhood-level crime was associated with perpetration for girls but was not associated with girls' victimization.[33]

Implications

NIJ funding for secondary data analyses of the Survey on Teen Relationships and Intimate Violence (STRiV) supported a closer look at the potential for factors that may signal disadvantage at the

neighborhood level for adolescents and their risk for involvement in ARA and/or harassing behaviors. Relatively few studies have been conducted on the influence of neighborhood characteristics on harassment and abuse in teen relationships, particularly at the national level.[2,7,16,34] This area of research could be particularly crucial to our understanding of the formative context of involvement in ARA and harassing behaviors, as neighborhoods serve as the backdrop to the development of adolescent relationships. While the STRiV research program was not originally designed as a multi-level study of neighborhood factors, studies conducted with this grant add to the literature regarding the role of neighborhood measures of income inequality, gender equality, concentrated disadvantage and aggregate crime rates in abusive and harassing adolescent relationships. Results of these secondary data analyses indicate that efforts to enhance a community environment of gender equality may be supportive of reducing male perpetration of abusive dating behaviors. Moreover, efforts to minimize young men's traditional gender stereotypes, an individual measure that could be targeted at the community level as well, may be a positive force in reducing the incidence of sexual harassment perpetration. Because the current research suggests that young men's sexual harassment perpetration is a greater problem in the more advantaged neighborhoods, the field needs to consider the potential that gendered aggression is not necessarily a greater issue in neighborhoods usually considered to create more risks for youth.

Several limitations should be considered in interpreting these findings.[17] First, the STRiV data are self-reported and are thus subject to respondent recall and other biases. Due to the wide age range of participants and concerns about the younger participants, measurement of sexual abuse was limited to four items since more than four items.[17] Also, like other studies in this area, the ARA index captured reports of specific acts, but did not specify acts of offense or defense, or the intensity of or motivations for reported incidents.[17] However, we used standard instrumentation to generate nationally representative estimates of ARA and sexual harassment. Because participants were asked to report on ARA incidents that occurred within a current or past-year dating relationship, STRiV estimates are more conservative than other lifetime measures of ARA using the CADRI.[17] Other research has included a broader scale of stalking behaviors than the items included in our study[35]; studies with leeway to gather more detailed

information on stalking should consider options. As a national self-administered survey, the design prohibited collection of contextual details describing specific incidents, a goal for further research.[17]

Additionally, we note the limitations of using neighborhood-level measures at the tract level (necessitated by the available ACS data), particularly in that the STRiV sample distribution across the U.S. is such that there were too few respondents per census tract for multi-level modeling. Thus, the analyses are limited to adjusting for neighborhood measures. The gender inequality measure relies on a small set of economic items and future research may consider inclusion of additional socioeconomic measures.[36] The FBI's UCR data are not necessarily complete and do not capture unreported violence that likely occurs in neighborhoods, such as could be documented through systematic social observation.[37] Finally, more in-depth analyses adjusting simultaneously for a range of neighborhood factors, racial composition, parental educational level, social cohesion, civic participation, collective efficacy, physical disorder and the quality of local resources are warranted.

In conclusion, we explored whether neighborhood factors signal community-level disadvantage for adolescents and their risk for involvement in ARA and/or harassing behaviors in a nationally representative sample. A majority of research conducted on risk and protective factors associated with ARA and harassing behaviors has focused on individual-level influences. Given that neighborhood context is often a setting in which interpersonal relationships develop, and an important context for adolescent socialization, it is essential to examine aspects of the neighborhood environment in designing ARA prevention approaches. For example, because school attendance is largely determined by residence in the U.S., understanding neighborhood contexts can be of value in designing school-based prevention programming. Our findings add to the literature regarding the role of neighborhood measures of income inequality, gender equality, concentrated disadvantage and aggregate crime rates in abusive and harassing adolescent relationships. Overall, the studies conducted under this grant highlight the importance of investigating neighborhood characteristics in relation to ARA and harassing behaviors.

Appendix

Table 1. STRiV youth sample description, STRiV Baseline (Wave 1) and Wave 4

	Baseline (Wave 1)		Wave 4	
	n	% / mean (S.D.)	n	% / mean (S.D.)
Age of youth	2354	14.0 (2.58)	1499	16.6 (2.99)
Gender of youth				
Female	1197	50.8%	741	49.4%
Male	1157	49.2%	758	50.6%
Race/ethnicity of Parents				
White	1440	61.2%	917	55.7%
Black	325	13.8%	196	11.9%
Hispanic	432	18.3%	412	25.0%
Other	156	6.7%	121	7.4%
Household characteristics				
Median household income		$55,000		$55,000
Household size (mean & median)		4.38 & 4.0		4.02 & 4.0
Household income $100,000+	627	26.5%	587	35.6%
Parents Education				
Never graduated high school	220	9.4%	231	14.0%
High school	485	20.6%	462	28.1%
Some college	778	33.0%	463	28.1%
4-year college degree or >	871	37.0%	490	29.7%
Location of residence				
South	885	37.6%	609	37.0%
West	555	23.6%	420	25.5%
Midwest	508	21.6%	350	21.3%
Northeast	406	17.3%	267	16.2%
Urban	1990	84.5%	1415	86.0%
Non-urban	364	15.5%	231	14.0%

Table 2. Descriptives of Neighborhood-level measures

	n	% / mean (S.D.)
Neighborhood Income Inequality [a]	2354	4.02 (0.56)
Neighborhood Disadvantage [a]		
Below median	1176	49.9%
Above median	1178	50.1%
Neighborhood Crime [b]		
Below median	1185	50.3%
Above median	1169	49.7%
Gender Equality [a]	2334	.01 (1.04)

[a] data from the American Community Survey (ACS)
[b] data from the CrimeRisk database

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