Extreme Warfare: Residency in Housing Voucher-Dense Communities, Violence, and Adolescent Mental Health

PAA 2014 Extended Abstract

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Federal housing policy has shifted focus considerably over the years, moving away from the project-based, supply-side housing production programs of the past and toward tenant-based, demand-side 'gap-filling' subsidies (McClure, 1998; Winnick, 1995; Goetz, 2000; Turner, 1998; 2008). A major impetus for this shift in policy direction was a wealth of research findings and related literature, spanning several decades, demonstrating the deleterious and long-lasting effects of residency in neighborhoods marked by concentrated poverty and residential segregation, on both health and life course outcomes (Massey & Denton, 1993; Leventhal & Brooks-Gunn, 2000; Massey, Gross, & Eggers, 1991; Brooks-Gunn, Duncan, & Alber, 1997; Jargowsky, 1997; Wilson, 1987, 1996), particularly neighborhoods with high concentrations of project-based, public housing developments (Bickford & Massey, 1991; Schill, 1993; Schill & Wachter, 1995; Goering, Kamely, & Richardson, 1994, 1997; Kotlowitz, 1991; Popkin et al., 2000).

The Housing Choice Voucher (HCV) program, federally funded by the United States Department of Housing & Urban Development (HUD), serves 2.1 million low-income households nationwide, of which approximately fifty percent are households with children and adolescents (U.S. Department of Housing & Urban Development, 2013). The flexibility and choice inherent in this tenant-based program is intended to provide households with spatial mobility (Winnick, 1995), as well as drive overarching programmatic objectives: alleviation of rent burden, poverty deconcentration, and ultimately, upward social and geographic mobility, leading to improved employment, educational, and health outcomes.

To date, the HCV program outperforms other existing federal rental assistance programs in its ability to locate households in neighborhoods with modest levels of poverty (Newman and Schnare, 1997; Devine et al., 2002; Turner, 1998; Hartung & Henig, 1997; Kingsley et al., 2003; Feins & Patterson, 2005). Further, landmark policy interventions including Moving to Opportunity (Orr et al., 2003; Goering & Feins, 2003; Sanbonmatsu et al., 2011) and Gautreaux (Rosenbaum et al., 1991; Rosenbaum, 1995; Keels et al., 2005), underscore not only the implications of constrained choice, but also the invaluable long-term impacts, particularly on mental health, of supplementing voucher households with assisted mobility counseling and housing search assistance, not standard in the universal HCV program.

Despite these promising findings, many voucher households containing children and adolescents still continue to reside in neighborhoods marked by high levels of poverty, racial segregation, and crime—failing to move to demonstrably better neighborhoods (Devine et al., 2002; McClure, 2010; Zandt & Mhatre, 2009). Further, and to date less explored, the density and spatial clustering of voucher recipient households in neighborhoods nationwide varies considerably across housing markets, with major metropolitan areas such as Baltimore showing recent, nascent increases in these measures (Wang, Varady, & Wang, 2008; Varady, Wang, & Duhaney, 2010; Oakley & Burchfield, 2009). In turn, there is a paucity of research examining the effects and implications of residency in these emergent, HCV-dense neighborhoods, for both subsidized households and their communities (Popkin & Cunningham, 2000), especially through the lens of adolescent health, and particularly as it relates to community violence and PTSD (see Lens, Ellen, & O'Regan, 2011). While research has demonstrated links between violence, residency in violent communities, and Post-Traumatic Stress Disorder (PSTD), (Baker et al., 2005), less of this work has focused on adolescents (Kilpatrick et al., 2003), and virtually no work we are aware of to date has examined this relationship involving emergent HCV-dense communities.

The analyses that follow make use of rich study data available to us relating to community violence as perceived by adolescents themselves, as well as HCV household data from HUD. The aims of this paper are to explore (1) whether residency in an extreme HCV subsidy-dense (EVSD) community affects adolescent perception of and exposure to violence in their immediate environment and (2) whether residency in an extreme HCV subsidy-dense community mediates the relationship between adolescents' perception of and exposure to violence in their environment and symptomology of PTSD.

Data and Methods

The data utilized for this paper comes from the mixed methods research study, "WAVE: Well-Being of Adolescents in Vulnerable Environments" conducted in five sites during 2011-2013. For this paper, we specifically analyze quantitative data (n=437) from the Baltimore, MD study site collected from both male and female adolescents aged 15-19, residing in a targeted recruitment region within East Baltimore, encompassing five (5) zip codes, further broken down into sixteen (16) Community Statistical Areas (CSAs). In these analyses, we focus on the Baltimore site, as all other WAVE study locations were located in other countries (Nigeria, China, India, and South Africa), where federally subsidized housing data is unavailable and/or inapplicable.

Data was collected using a comprehensive, 400-item questionnaire administered via Audio Computer-Assisted Self-Administered Interview (ACASI), exploring topics such as the physical and social environment, education, social support, general health, mental health, and access to health services. The questionnaire was developed and piloted by the research study team, drawing on tested and validated questions as well as scales from existing research literature. Respondents received twenty dollars ($20) as an incentive for completing the survey, which lasted approximately one hour.

The recruitment of participants was conducted via Respondent Driven Sampling (RDS), in order to reach and include adolescents that were out of school or unstably housed, a subpopulation often missed by traditional household or school-based surveys. RDS has been used as an effective method to reach "invisible" populations (Heckathorn, 1997), and this study is one of the first to use RDS among adolescents, providing uniquely innovative data.

Data from HUD's *Picture of Subsidized Households* for 2000, 2009, and 2012 datasets was also utilized for this paper, which describes the characteristics of HUD assisted housing by program type (i.e., Housing Choice Vouchers), and also offers important insights into the characteristics of assisted households and communities in which they reside, reported at the census tract level. This data, supplemented by 2000 and 2010 U.S. Census housing data, was combined to examine and categorize census tracts (and then larger Community Statistical Areas) by voucher household presence and density.

For this paper we have categorized extreme HCV subsidy-dense (EVSD) communities as those in which over ten percent (10%) of the entire rental housing stock, or at minimum twenty percent (20%) of the occupied housing stock (factoring in vacant/abandoned housing), is subsidized through the tenant-based HCV program, with the absence or near-absence of other assisted rental units (project-based or public housing), with previous literature utilizing a 'neighborhood threat' threshold of voucher density at the census tract level of just 4% (McClure, 2011). Further, we aggregated voucher household density data from the census tract level to the CSA level, as data in our sample contains information about the CSA in which the adolescent lives.

To operationalize the adolescents' perception of the community in which they live, we utilized data on reported feelings of fear in the neighborhood and exposure to violence in the neighborhood, with exposure to violence defined as both witnessing violence, such as the use of guns, and experiencing violence, such as being shot by a gun. Questions included in the WAVE survey were adapted the Centers for Disease Control's "Measuring Violence-Related Attitudes, Behaviors, and Influences Among Youth: A Compendium of Assessment Tools (Second Edition)" (Dahlberg et al., 2005) and were used to create three variables: feelings of fear in the neighborhood, a low intensity exposure to violence, and a high intensity exposure to violence. Table 2 shows an example from each set of questions. Intensity of exposure to violence was determined based of the type of violence being witnessed or experienced; for example, hearing guns being shot in the neighborhood is defined as low intensity, while seeing someone killed in the neighborhood is defined as high intensity.

To assess adolescent mental health, this paper examines the likely presence of Post-Traumatic Stress Disorder (PTSD), measured using the full PTSD Checklist (PCL) developed by the National Center for PTSD for the U.S. Department of Veterans Affairs (VA.gov, 2012). The PCL is a demonstrated, reliable, and validated tool to indicate the likely presence of PTSD in the absence of a formal clinical diagnosis (Blanchard et al., 1996; Ruggiero et al., 2003; Cook et al., 2005; Wilkins et al., 2011). Following the VA National Center for PTSD guidelines for scoring, we use a cutoff point to determine the likely presence of PTSD in an adolescent; the PCL score ranges from 0-85, with a score of 30 or above used to indicate PTSD in a general population sample. A score of 50 or above is the cutoff point for the presence of PTSD in a population such as Veterans in a mental health clinic; we use this cut-point to define an intense-PTSD variable.

We employ multivariate logistic regressions to explore the relationship between residency in an extreme HCV subsidy-dense community (EVSD) and adolescents' perception of their community, as well as the relationship between perception and experience of community violence and PTSD. For the latter, we use an interaction term for residency in an EVSD community to determine whether this modifies the effect. The results that follow are unweighted; the WAVE study team is currently in the process of developing weights using the RDS2 estimator and these weights will be used in the final analyses.

Results

Table 1 shows the characteristics of the respondents in our sample. The sample consisted of a larger number of young adolescents than older adolescents and slightly more males than females. The majority of the sample identifies as Black or African American while a quarter of the sample identifies as more than one race.

Nearly 15% of the sample is out of school, a characteristic that RDS assisted in capturing, and more than half of the sample resides in a single zip code in East Baltimore.

Table 2 shows sample questions from the WAVE survey used to construct some of the main predictors and Table 3 reports the characteristics of our sample in terms of the main PTSD outcomes. Quite alarmingly, 50% of adolescents in our sample meet the cutoff for PTSD with 23% also meeting the cutoff for an intensity of PTSD normally seen among the most traumatized war veterans.

Table 4 reports the preliminary results from the multivariate logistic regression exploring the relationship between residency in an EVSD community and adolescents' perception of their community, adjusted for basic demographic variables. Model 1, in which self-report of feeling fearful in the community is the main outcome, shows that adolescents living in these EVSD communities are 1.176 times more likely to report feeling fearful in their community than those who do not.

Table 5 reports the preliminary results from the multivariate logistic regression for the two PTSD outcomes. In Model 1 the outcome is PTSD while in Model 2 the outcome is intense PTSD; for both models, the most significant predictor of PTSD is high intensity exposure to violence in a community and this effect is statistically significantly modified by whether an adolescent resides in an EVSD community.

Discussion

While the Housing Choice Voucher program has made strides toward the alleviation of housing rent burden and the deconcentration of poverty, especially compared to its project-based predecessors, current trends in the spatial clustering of voucher households and the emergence of EVSD communities is great cause for public health concern. Our data not only helps brings this issue to light, but also demonstrates the negative implications of residency in EVSD communities on adolescent mental health outcomes.

Adolescents living in EVSD communities are significantly more likely to report being fearful in their community of residency. While exposure to violence in the past 12 months is not statistically significant, adolescents in these communities do perceive that there is a very real chance that violence could happen to them and are intensely fearful of this possibility. Additionally, the violence that is experienced by these adolescents is significantly associated with the very high prevalence of PTSD and this effect is modified by whether they reside in EVSD communities.

Thus, residency in these communities is an important factor to consider when evaluating the mental health of adolescents, a powerful finding adding to extant assisted housing research. All adolescents in this sample reside in what can be classified as a vulnerable environment, however, the extreme concentration of these voucher-assisted households within these communities may be creating an additional layer of vulnerability for these adolescents that must be further explored through research and addressed by programmatic change.

Table 1. Characteristics of Respondents (n=437)

Age	**n**	**%**
15	182	41.65
16	59	13.5
17	108	24.71
18	70	16.02
19	18	4.12
Sex	**n**	**%**
Male	252	57.67
Female	185	42.33
Race	**n**	**%**
White	4	0.95
Black, African American	296	70.64
Hispanic	3	0.72
American Indian, Alaskan	6	1.43
More than 1 race	110	26.25
Zip Code	**n**	**%**
21202	32	7.32
21205	251	57.44
21213	84	19.22
21224	57	13.04
21231	13	2.97
Currently in School	**n**	**%**
No	65	14.87
Yes	371	84.9
Wealth Tertile	**n**	**%**
Low	129	30.35
Middle	150	35.29
High	146	34.35

Table 2. Sample Survey Questions

Fear
In the past 12 months, how often have you purchased a gun, knife or other weapon for self protection because you were afraid of crime in your neighborhood?
Low Intensity Exposure to Violence
In the past 12 months, how often did you hear guns being shot in your neighborhood?
High Intensity Exposure to Violence
In the past 12 months, how often were you shot by a gun, stabbed with a knife, or hurt with another type of weapon in your neighborhood?

Table 3. PTSD Outcomes

PTSD	**n**	**%**
No	215	49.2
Yes	222	50.8
*Cutoff score of 30 to indicate likeliness of PTSD		
Intense PTSD	**n**	**%**
No	338	77.35
Yes	99	22.65
*Cutoff score of 50 to indicate likeliness of intense PTSD		

Table 4. Perception of Community Adjusted Odds Ratios								
	Model 1		Model 2		Model 3		Model 4	
	Fear		Low Intensity Exposure to Violence		High Intensity Exposure to Violence		Perceived Safety	
	OR	p	OR	p	OR	p	OR	p
Age	0.834**	0.030	1.187	0.202	1.053	0.516	1.397**	0.003
Gender								
Male	REF		REF		REF		REF	
Female	2.088**	0.002	1.171	0.143	0.986	0.929	0.661**	0.035
Currently in School								
No	REF		REF		REF		REF	
Yes	1.206	0.129	1.225	0.117	0.934	0.722	0.786	0.638
Wealth Tertile								
Low	REF		REF		REF		REF	
Middle	0.498**	0.046	0.530**	0.031	0.662*	0.055	1.169	0.564
High	0.386**	0.003	0.321**	0.001	0.902	0.443	1.167	0.520
EVSD								
No	REF		REF		REF		REF	
Yes	1.176*	0.076	0.863	0.461	1.010	0.946	1.178	0.207

EVSD=Extreme Housing Voucher Subsidy Dense Community
Note: *indicates significance at the p<0.10 level; **indicates significance at the p<0.05 level

Table 5. PTSD Adjusted Odds Ratios				
	Model 1		Model 2	
	PTSD		Intense PTSD	
	OR	p	OR	p
Age	0.899	0.227	0.854	0.261
Gender				
Male	REF		REF	
Female	1.435*	0.069	1.137	0.731
Currently in School				
No	REF		REF	
Yes	1.082	0.655	1.234	0.283
Wealth Tertile				
Low	REF		REF	
Middle	0.792	0.176	0.992	0.929
High	0.554**	0.012	0.873	0.500
Fear Tertile				
Low	REF		REF	
Middle	0.917	0.812	0.750	0.586
High	2.245*	0.077	0.954	0.914
Low Intensity Exposure Tertile				
Low	REF		REF	
Middle	0.708	0.391	0.539	0.247
High	0.404	0.118	0.818	0.819
High Intensity Exposure Tertile				
Low	REF		REF	
Middle	2.067**	<0.001	2.11**	0.001
High	6.612**	<0.001	4.534**	<0.001
Perception of Safety				
Very Safe	REF		REF	
Safe	1.499	0.194	1.492	0.396
Unsafe	1.513	0.394	1.271	0.490
Very Unsafe	1.097	0.847	1.725	0.130
EVSD				
No	REF		REF	
Yes	0.829	0.823	0.570	0.419
Fear*EVSD	0.908	0.517	1.390	0.048**
Low Intensity*EVSD	2.478	0.002**	0.933	0.797
High Intensity*EVSD	0.403	<0.001**	0.767	0.062*
Perceived Safety*EVSD	1.091	0.652	1.250	0.034**

Note: * indicates significance at the p<0.10 level; ** indicates significance at the p<0.05 level

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