

## **Witnessing violence and risk taking by adolescents: Rural and urban comparisons**

**Jenifer Cartland, Ph.D. & Holly S. Ruch-Ross, Sc.D.**

*Maryann and J. Milburn Smith Child Health Research Program  
Children's Memorial Research Center  
2300 Children's Plaza, Box 157  
Chicago, IL 60614*

### **ABSTRACT**

***Purpose:** Because many studies on witnessing violence focus on urban youth, little is yet known about witnessing violence for rural youth and how social setting mitigates the impact of witnessing violence on risk behaviors. This paper seeks to explore the role of social context on the link between witnessing violence and risk behaviors.*

***Methods:** Students in four high schools and their feeder schools were surveyed anonymously about their experiences witnessing violence and risk behaviors. Two of the schools were urban and located in very high violence neighborhoods; two were rural and located in areas with very high rates of child abuse and substance use.*

***Results:** Social context plays a role in how witnessing violence influences adolescent behaviors at two levels – the social space where the violence occurs (“a house” versus “elsewhere”) and the broader social context of the witness (rural versus urban). Urban and rural adolescents who witness a similar violent act appear to engage in different risk behaviors. Regardless of their social context, students who witness violence in a home report elevated risk behaviors.*

***Conclusions:** The conclusions from the study are limited by its cross-sectional nature, yet the data suggest that each social setting may have a different etiology for risk behaviors, especially as it concerns the experience of witnessing violence. It appears that witnessing violence is more associated with externalizing risk behaviors (gun carrying, the use of negative conflict tactics) in the urban setting and with internalizing risk behaviors in the rural setting (substance use).*

### **INTRODUCTION**

Since Betsy McAlister Groves' important research on children's exposure to violence (McAlister Groves, 1994), much has been learned about how witnessing violence influences adolescent development. In studies of urban youth, witnessing violence has been shown to be related to increased prevalence of post traumatic stress syndrome

(Rosenthal, 2000), increased depression (Gorman-Smith & Tolan, 1998), especially for girls (Buckner, Bassuk, & Beardslee, 2004), distracting thoughts for boys (Howard, Feigelman, Li, Cross, & Rachuba, 2002), and decreases in school achievement (Henrich, Schwab-Stone, Fanti, Jones, & Ruchkin, 2004).

However, the role that social context (rural or urban) plays in the relationship between witnessing violence and risk behaviors is not well understood. Is the kind of violence witnessed by rural and urban youth the same kind of violence? If so, are rural and urban youth affected in the same way, or does social context mediate the effect of witnessing violence?

Studies that compare social settings are necessary for these questions to be examined. However, most studies of witnessing violence focus on only one social setting, rural or urban. These studies suggest that witnessing violence has different behavioral effects in different social settings: witnessing violence is related to aggression in an urban sample (Gorman-Smith & Tolan, 1998) and substance use in a rural population (Sullivan, King, & Farrell, 2004); and rural youth have been shown to be at heightened risk of exposure to gun violence (Slovak & Carlson, 2004).

Studies directly comparing urban and rural youth are less prevalent largely because of measurement problems (Buka, Stichick, Birdthistle, & Earls, 2001). Witnessing violence is typically measured by employing a version of the Child Exposure to Violence Scale (Schwartz & Proctor, 2000), which was designed for use in urban settings (e.g., How many times have you been chased by gangs, other kids or adults? How many times have you seen someone carrying a gun or other weapon (except for police, military, or security guards)?). In rural and suburban settings, where the public street life is significantly different than in urban areas and where hunting with a wide range of weapons is a common hobby, these measures may not translate well. The measure is also limited in that it does not explore home or interpersonal violence.

These issues became apparent to the authors when we were challenged to find a witness to violence measure that would be useful in a large cross-site evaluation of a school-based violence prevention program. Working with the funder and the key informants at the sites, a new measure was developed (Cartland & Ruch-Ross, 2007).

The current study attempts to provide an initial exploration of how the social context informs youths' reactions to violence. We examine the relationship between witnessing violence and three risk behaviors (gun carrying, peer aggression and substance use) and conflict resolution tactics (negative and positive). Doing so will help expand the discussion of witnessing violence beyond the urban youth to a far less studied population, rural youth, and will permit us to begin exploring the role of the social environment in mediating the effects of these experiences.

## METHOD

The current study is the result of the evaluation of a school-based violence prevention demonstration project in Illinois. The schools involved elected to respond to an RFP for the demonstration project to a state agency (The Illinois Violence Prevention Authority) and were chosen to participate in the demonstration project by the state agency. The current analysis employs data gathered during the baseline phase of the evaluation, prior to the beginning of the demonstration.

Four high schools and their feeder schools were involved with the study. Two of the schools were rural and were located in small communities in southern Illinois. These schools have student populations that are socio-economically diverse, but racially homogeneous (virtually all white). The urban schools chosen were also racially homogeneous, but virtually all African-American and were in Chicago neighborhoods with high poverty and low high school graduation rates. Since the race of the students was confounded with community, we could not differentiate the effects of ethnicity and location.

Table 1. Demographic characteristics by site

Characteristic	Rural n=196	Urban n=897
Grade		
8 <sup>th</sup>	49.0%	63.0%
11 <sup>th</sup>	51.0%	37.0%
Gender		
Male	50.0%	48.4%
Female	50.0%	51.6%
Race		
White	94.3%	0.1%
African American	0.5%	95.9%
Other	5.2%	4.0%

The survey was administered to 8<sup>th</sup> and 11<sup>th</sup> graders and was determined to be exempt by the investigators' Institutional Review Board. Participating schools opted to notify parents of the survey and allow them to refuse consent for their children to take the survey. Fewer than five students in each school were withdrawn from the survey by their parents. In addition, students were not required to complete the survey, or any portion of it. We received blank surveys from approximately ten students overall.

We surveyed all 11<sup>th</sup> grade students in the study schools and all of the 8<sup>th</sup> grade students in the rural site. For the urban site, 2-3 classrooms were randomly chosen at each of the eight feeder schools. Table 1 details demographic information about the 897 urban and 196 rural students in the present analysis.

**Risk Behaviors (Dependent Variables)**

Carried a gun was measured by one item asking subjects if they had carried a gun in the previous 30 days. Overall, 10.3% of our respondents reported this behavior (Table 2).

Peer aggression was measured by a 4-item scale developed for this project which asks students how many times in the last seven days they, for example, “Hit someone for no reason.” The mean for this sample is 2.3 (range 0, 8). There is no significant difference between the rural (2.2) and urban (2.4) samples. The Cronbach  $\alpha$  is .72.

Substance use was measured by counting the number of substances subjects reported using in the previous 30 days (cigarettes, alcohol, marijuana, cocaine, inhalants, methamphetamines, and “other” drugs). About one-third of students reported using at least one substance in the previous 30 days. For the variable used in the present analysis, the number of substances used in the last 30 days, urban students reported a mean of 0.6 substances used, and rural students a mean of 1.0 (range of combined samples 0, 7). This difference was statistically significant.

Negative conflict tactics was measured by the Conflict Tactics scale (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). The original scale was altered to focus on conflicts with close friends, rather than with a spouse or a partner. The final six items of the scale are combined to create the negative conflict tactics scale, including items such as, “I threatened to hurt or hit him/her,” and “I threw something at him/her.” The range for the negative conflict tactics scale is 0 to 30, and the Cronbach  $\alpha$  is .88.

**Table 2. Dependent and independent variables by site**

	Rural n=196	Urban n=897
<i>Dependent variables</i>	% (yes)	% (yes)
Carried a gun in the last 30 days	12.7%	9.7%
	<i>mean</i>	<i>mean</i>
Negative conflict tactics score *	5.0	6.4
Positive conflict tactics score	11.9	12.7
Peer aggression	2.2	2.4
Number of substances used in the last 30 days **	1.0	.6
<i>Independent variables</i>	% (yes)	% (yes)
Witnessed violence in someone’s house (only)	4.9%	6.1%
Witnessed violence somewhere else (only) **	18.7%	47.5%
Witnessed violence in both places*	4.9%	10.9
Seen a gun at school **	18.0%	39.2%
	<i>mean</i>	<i>mean</i>
School norms of aggression	4.9	5.0
Perception of others’ willingness to help	8.3	8.3
Peer victimization	5.5	5.1

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

Positive conflict tactics, the only protective factor included, was measured in a similar way by using the first four items of the Conflict Tactics Scale, which ask respondents how often they use tactics such as “Tried to discuss the issue relatively calmly,” and “Brought evidence to back up my position.” The range for the positive conflict tactics scale is 0 to 20, and the Cronbach alpha is .79.

### ***Independent Variables***

Witnessing violence: The measure used in this study includes a series of four questions: “Did you ever see a kid your age beaten up?” “Did you ever see an older kid beaten up?” “Did you ever see an adult beaten up?” “If you have ever seen an adult beaten up, did you see this in someone’s house, somewhere else or in both places?” By focusing the current analysis on the latter two questions related to adults being beaten up, this paper takes a narrow focus. It addresses a kind of violence that stands out as exceptional in all social environments, according to our key informants, and it assures that our subjects, who are all adolescents, are not victims of the particular act they report witnessing, allowing us to better isolate witnessing as its own event. The measure is imperfect, but it allows us to take a first look at how the contexts of the witnessing experience may have a differential impact on adolescent risk taking.

Three variables that reflect environmental factors were included as independent variables. Except for the last of these (seeing a gun at school), there were no discernable urban/rural differences in what the students reported.

School norms for aggression were assessed with 11 items that ask the individual’s opinion on other students’ responses to aggression by their peers (Henry, Cartland, & Ruch-Ross, 2004). A response that other students would think an act was “OK” was scored as 1, “Not OK” was scored as -1 and “Wouldn’t care” was scored as zero. The reliability of this measure by Cronbach’s alpha was .97, and the average score was 5.0 (range -11, 11).

Others’ willingness to help was measured using a four item scale developed for this project in which subjects were asked if they feel others are willing to help someone being victimized if the victim was a member of the family, a close friend, and other relations. The mean score for the total sample on this scale was 8.3 (range 4, 12), with the higher score indicating that students think other people will be more helpful. There is no difference between the two sites. The reliability of this measure by Cronbach’s alpha was .59.

Seeing a gun at school was measured by one item that asked subjects if they had seen a gun at school, “Have you actually seen another student with a gun in the school building in the last six months?” Overall, 35.2% of students reported having seen this.

The last independent variable measures the extent to which the respondent experienced violence at school:

Peer victimization was measured using a scale adapted from Orpinas and Kelder (as cited in (Dahlberg, Toal, & Behrens, 1998)). The scale is comprised of 13 items that query students about the number of times they have been victimized by peers during the last week (not at all, one time, more than one time, coded 0, 1 and 2, respectively). The responses to the 13 items were summed (highest possible score is 26). The full measure includes two subscales relating to verbal and physical victimization. The internal consistency of the full measure by Cronbach's  $\alpha$  was .90.

**Table 3. Risk and protective behaviors for those who witnessed violence and those that did not, by site (means)**

	Rural n=196	Urban n=897
<i>Number of risk behaviors (gun carrying, physical fighting, substance use)</i>		
Witnessed violence in someone's house	1.33**	1.05**
Witnessed violence somewhere else	1.02**	.82**
Did not witness violence	.56	.63
<i>Number of substances used</i>		
Witnessed violence in someone's house	2.78**	1.14**
Witnessed violence somewhere else	1.86**	.74**
Did not witness violence	.65	.33
<i>Negative conflict tactics score</i>		
Witnessed violence in someone's house	10.44*	8.94**
Witnessed violence somewhere else	7.28*	7.28**
Did not witness violence	4.10	5.01
<i>Positive conflict tactics score</i>		
Witnessed violence in someone's house	12.61	13.00
Witnessed violence somewhere else	11.81	12.35
Did not witness violence	11.78	12.84

\* T-tests indicates that mean is significantly different from the means for those that did not witness violence, \*  $p < .05$ ; \*\*  $p < .01$ .

The current analysis was performed in SPSS v. 12. All of the regression equations presented use OLS procedures. For one dependent variable (carrying a gun), logistic regression is appropriate because it is dichotomous. However, since the findings for this variable are essentially the same, whether it is run as OLS or logistic, the OLS models are presented here to allow for easier comparison across models for all five dependent variables.

## RESULTS

Students who reported having witnessed violence were more likely to participate in risk behaviors than students that did not witness violence in both rural and urban settings (Table 3). To simplify the analysis, gun carrying, physical fighting and substance use are collapsed into one cumulative measure that computes how many of these three risk behaviors the respondent reports participating in. In rural settings, those who witness violence at home or elsewhere participate in about twice as many risk behaviors, on average, as do respondents who do not report witnessing this violence; the difference is smaller, though significant, for urban subjects.

Substance use follows a similar pattern, but is much more dramatic for rural students. Rural respondents who report witnessing violence at a home, on average, use four times as many substances as do rural students who do not report this experience. Rural students who witness violence away from home use about three times as many substances as do rural students who did not witness violence. Urban students report using about half as many substances as do rural students, regardless of their experiences of witnessing violence.

The use of negative conflict tactics is reported at a much higher rate by students who have witnessed an adult being beaten up in someone's house. As for the other measures, the magnitude of the differences for the rural students is greater than that for the urban students.

There are no statistically significant differences in the scores students received on the positive conflict tactics scale by whether they witnessed violence or by what kind of violence they witnessed for either site.

The multivariate analyses are run separately for the urban and the rural samples. This is primarily due to our interest in whether the relationship between witnessing violence and risk behaviors is different for the urban and rural samples, but it also allows us to avoid the issue of the difference in sample size between the two groups that would arise should we attempt to estimate a single model. Table 4 displays the multivariate results. Please see the *Methods* for a brief discussion of the regression procedures. Gender and grade are included as control variables.

In the rural sample, witnessing violence at home or elsewhere is significantly associated only with substance use, when gender, grade, and other factors that reflect the perception of the social context for students are taken into account. It is worth noting that the standardized beta coefficients for witnessing violence in a home are elevated for two of the three risk behaviors (carrying a gun and negative conflict tactics), but are not statistically significant. It may be that the small sample size is depressing these findings. Also worth noting is that, although witnessing violence is only associated with substance use for the rural sample, the R Squares on these models are quite substantial and suggest the importance of considering the perception the social environment in the understanding of risk taking among rural adolescents. This is especially true for students who report

elevated use of negative conflict tactics. These students also tend to report perceiving that the school norms permit aggression, seeing a gun at school and a higher level of peer victimization and aggression towards their peers. The R Square for this model is .52.

**Table 4. Regression analysis for rural subjects  
(standardized beta coefficients, n=196)**

	Carried a gun	Peer aggression	Used any substances	Negative conflict tactics	Positive conflict tactics
<i>R</i> <sup>2</sup>	.15	.22	.40	.52	.17
<i>Demographics</i>					
Gender	.21**	.01	.15*	.20**	.26**
Grade 11 (v. grade 8)	.11	-.01	.20**	.01	.16*
<i>Witness violence</i>					
In someone's house	.11	.01	.24**	.10	-.01
Somewhere else	.09	.09	.15*	.01	-.04
<i>Perception of environment</i>					
School norms of aggression	.06	.12	.03	.13*	.21**
Others' willingness to help	.08	-.03	-.16*	-.16**	-.14
<i>Experiences at school</i>					
Seen a gun	.04	.09	.30**	.24**	.05
Peer victimization	.09	.34**	.01	.32**	-.03
Peer aggression	.13	-----	.14*	.20**	.00

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

Table 5 displays the results for the urban sample. In contrast to the rural sample, witnessing violence in a home is associated with a wider range of risk taking – gun carrying, peer aggression, substance use, and negative conflict tactics. Witnessing violence away from home is only associated with peer aggression, and not with other risk behaviors. The R Squares, although they are reasonably high, are much lower for the urban sample than the rural sample.

**Table 5. Regression analysis for urban subjects (standardized beta coefficients, n=897)**

	Carried a gun	Peer aggression	Used any substances	Negative conflict tactics	Positive conflict tactics
$R^2$	.16	.15	.17	.23	.05
<i>Demographics</i>					
Gender	.25**	-.06	.10**	.06	.13**
Grade 11 (v. grade 8)	.10**	-.07	.23**	-.01	-.01
<i>Witness violence</i>					
In someone's house	.10**	.12**	.15**	.07*	.03
Somewhere else	.05	.09**	.04	.04	-.05
<i>Perception of environment</i>					
School norms of aggression	.12**	.10**	.09**	.07*	.05
Others' willingness to help	.07*	.02	-.02	.03	-.11**
<i>Experiences at school</i>					
Seen a gun	.10**	.08*	.06	.06	-.01
Peer victimization	-.04	.26**	.01	.12**	-.07
Peer aggression	.15**	-----	.18**	.37**	-.05

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

## DISCUSSION

Before drawing the conclusions for this study, it is important to reconsider the main weakness of the current study, having to do with how we measured witnessing violence – that it was defined as witnessing an adult being beaten up “in someone’s house” or “somewhere else.” The strength of the measure is that it is fairly specific and not context dependent, so that adolescents anywhere could have an experience that falls into one of the two categories. This makes comparison across social settings conceivable. The weakness is that it does not allow one to measure the full extent of the exposure to violence. Nonetheless, the findings are thought-provoking and suggest the need for additional attention to the issue of measurement in this area and to exploring the role that both the social context and the immediate context of violence play in how witnessing violence influences participation in risk behaviors for adolescents.

Another weakness of the current study is that it is cross-sectional; we did not follow students over time and cannot draw conclusions about behaviors “caused by” witnessing violence. Although the study was a multi-year study, the student surveys were anonymous and did not permit linkage over time. However, the study does permit simple

comparisons across sites and that suggests that the impact of witnessing violence takes different routes in different settings. Further research is required to understand these different routes more fully.

Even given these weaknesses, the current study suggests that social context plays a role in how witnessing violence influences adolescent behaviors at two levels – the social space where the violence occurs and the broader social context of the witness. Witnessing violence appears to be associated with a broader array of risk behaviors among urban youth than among rural youth. While urban youth may be thought to engage in “externalizing” risk behaviors, rural youth tend to engage in “internalizing” risk behaviors – such as substance use. Where rural youth appear to be affected by witnessing violence (substance use), the effect is much more pronounced than for urban youth.

Furthermore, the social space where the violence occurred appears to be relevant in understanding its impact. Witnessing an adult being beaten up in someone’s house appears to have a stronger association with risk behaviors, where witnessing such an event outside of a house has a weaker association. This appears to hold true in both social settings, rural and urban. Our measure cannot isolate youth who are witnessing domestic violence, but the category “witnessed an adult being beaten up in someone’s house” clearly captures the youth that have witnessed some kinds of domestic violence as a subset. Perhaps this is why the association between “in house” violence and risk behaviors is relatively strong.

Several questions suggest themselves for further study. These focus on measuring the nature of the violence more specifically (perhaps the violence witnessed “somewhere else” is qualitatively different in rural and urban environments) and on the nature of the differences in social context. Also of importance would be additional rural-urban comparative studies that examine the proximity of violence to the witness (the level of perceived threat, for example), the relationship of the victim and the perpetrator to the witness, and an assessment of the impact of witnessing domestic violence on risk behaviors for rural and urban youth. A final issue is to develop a fuller understanding of what it is about the social context that alters the risk behavior choices adolescents make.

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