



# Crime, physical activity and outdoor recreation among Latino adolescents in Chicago

Kimberly J. Shinew<sup>a,\*</sup>, Monika Stodolska<sup>a</sup>, Caterina G. Roman<sup>b</sup>, Jennifer Yahner<sup>c</sup>



<sup>a</sup> Department of Recreation, Sport and Tourism, University of Illinois at Urbana-Champaign, Champaign, IL, USA

<sup>b</sup> Department of Criminal Justice, Temple University, Philadelphia, PA, USA

<sup>c</sup> The Urban Institute, Washington, DC, USA

## ARTICLE INFO

Available online 13 July 2013

### Keywords:

Latino  
Adolescents  
Crime  
Physical activity  
Outdoor recreation

## ABSTRACT

**Purpose.** The purpose was to examine how fear of crime, crime victimization, and perceived level of community incivilities are related to physical activity participation and outdoor recreation among Latino adolescents.

**Method.** The study utilized a mixed methods approach that included 25 qualitative interviews and 390 school-based surveys collected from youth across three schools in Little Village, Chicago, Illinois.

**Results.** Results showed that Latino adolescents who expressed greater fear of crime also engaged in less physical activity and outdoor recreation. There was no association between crime victimization and physical activity and outdoor recreation. Those who perceived greater levels of community incivilities also engaged in less outdoor recreation, but perception of incivilities had no significant association with physical activity levels. Interview data revealed most of the children believed crime was a serious problem in their neighborhood and it impacted their ability to be physically active and play outside.

**Conclusions.** Fear of crime was related to lower physical activity and outdoor recreation. It is imperative that communities provide safe environments for children to be active. Increasing police and adult presence in parks and school grounds is recommended. Moreover, efforts must be made to reduce the gang problems in Latino communities.

© 2013 Elsevier Inc. All rights reserved.

## Introduction

Studies exploring relationships between neighborhood safety and physical activity (PA) have found mixed results. Although there is evidence that crime is associated with lower PA among adults (Ross, 2000; Ross and Mirowski, 2001), it is not clear whether this relationship holds for adolescents. While some studies have identified relationships between youth PA and crime (Zhu and Lee, 2008), a recent review suggested this relationship is unclear. However, there was some evidence that youth's perceptions of incivilities (e.g., graffiti, trash, and gangs in the neighborhood) were associated with lower levels of PA (Ding et al., 2011). The authors noted the need for research using specific measures of crime-related safety (e.g., fear of crime) and examining the association between incivilities and youth's PA (Ding et al., 2011). Other studies have indicated attention should be given to how subgroups of the population, particularly minorities, are affected (Ding and Gebel, 2012). Few studies have examined environmental correlates of PA for subgroups of youth, with only one or two addressing crime-related aspects of safety (Whitt-Glover et al., 2009). The gap in

the literature is particularly large with regard to crime-related safety and PA among Latino youth, which is surprising given that Latino adolescents often reside in communities with high crime rates and may suffer disproportionately from the effects of limited PA and access to outdoor recreation environments (Center for Disease Control and Prevention, National Center for Health Statistics, 2010; Crutchfield et al., 2006; Zhu and Lee, 2008).

The purpose of this study was to examine how fear of crime, level of crime victimization, and perceived level of incivilities in the community were related to PA participation and outdoor recreation among Latino adolescents living in an urban area. Outdoor recreation was included as a distinct aspect of PA because research has indicated that Latino youth are significantly less likely than their non-Hispanic White peers to be involved in organized PA outside of school (Johnston et al., 2007; Singh et al., 2008). It was hypothesized that fear of crime, crime victimization, and perceived community incivilities would be negatively associated with PA and outdoor recreation participation. Hypotheses were tested using quantitative methods, and qualitative research was used to supplement, deepen and extend these findings.

## Methods

### Participants and settings

Data were collected through 25 qualitative interviews and 390 school-based surveys collected from youth across three schools in Little Village, Chicago,

\* Corresponding author at: 104 Huff Hall, 1206 S. Fourth Street, Champaign, IL 61820, USA.

E-mail address: [shinew@illinois.edu](mailto:shinew@illinois.edu) (K.J. Shinew).

Illinois. Four schools were contacted and three agreed to participate. Schools were selected based on their proportion of Latino students and location in the community. Two schools had a Latino population of 98% and the third school had a Latino population of 91%. Data were collected between May 2010 and May 2011. All Latino students in grades 6–12 were given parent consent forms (Spanish and English) to take home. A second attempt to reach parents was made during parent report card pick-up day. Spanish-speaking college students approached parents and asked them to consent to their child's participation. Less than five parents declined. All students whose parents consented also assented, and then they completed the surveys. Out of a total of 253 students in grades 9–12, 200 students completed surveys which equates to a 79.1% response rates. Out of 211 students in grades 6–8, 190 students completed surveys for a response rate of 90.1%. All students who completed a survey were given a \$10 gift card. All procedures and instruments were approved by the University of Illinois at Urbana-Champaign IRB and by the Chicago Public Schools.

#### Quantitative phase

The school-based survey utilized items from previously validated scales (Ross, 2000; Ross and Mirowski, 2001). To measure fear, respondents were given eight statements and asked whether the statements were “not true at all,” “sometimes true,” or “mostly true.” Statements included items such as “I worry about being hurt by gangs in the neighborhood.” Scale reliability was high ( $\alpha = 0.86$ ). Two measures of victimization (witnessed and direct) were included. Witnessed victimization was assessed using an additive scale validated in past research for use with adolescents (Eitle and Turner, 2002). The scale included five items such as “I have seen a relative or friend being beaten up.” Response categories were “never,” “at least once,” or “more than once.” To measure direct victimization (but not victimization by family members), respondents were asked if in the last year they had been hurt by someone in the neighborhood (no = 0; yes = 1). To assess perceived incivilities, youth were asked about six potential problems in their neighborhood: graffiti, trash, vacant houses/apartments, people selling drugs, people using drugs, and gangs. Responses ranged from “not a problem” to “a big problem.” The scale was created by summing the items and dividing by the number of items. Scale reliability was good ( $\alpha = 0.74$ ). The incivilities scale has been validated in previous research (Perkins and Taylor, 1996).

PA and outdoor recreation were measured using items from the “Active Where?” survey (Kerr et al., nd). PA was assessed by averaging two items: the average number of days per week respondents reported being physically active in a typical week, and the number of days respondents reported being physically active in the week prior to the survey. Past research has established the validity of these items (separately) for use with adolescents (Prochaska et al., 2001). The scale ranged from 0 to 7 and reliability was high ( $\alpha = 0.82$ ). The outdoor recreation scale ranged from 0 to 3 (“never,” “once a month or less,” “twice a month,” “once a week or more”) and measured the average frequency at which respondents were active in six different outdoor locations (yard, driveway, street, park, schoolyard, neighbor's house/yard/driveway). Scale reliability was good ( $\alpha = .77$ ). Past research indicates the measure has adequate test-retest reliability (Kerr et al., nd).

All models also included a number of control variables that prior research has shown to be related to PA and/or delinquency. Socioeconomic status (SES) was assessed using the Family Affluence Scale; the scale ranged from 0 to 9, with higher scores indicating greater SES. The low self-control scale, a previously validated scale widely used in the criminology literature, ranged from 1 to 3 with higher scores indicating lower self-control. Level of assimilation and whether the respondent was born in the United States were also included as controls. Assimilation was assessed using the assimilation score of the Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA) (Unger et al., 2002). The scores ranged from 0 to 8 with higher values signifying greater assimilation to U.S. culture. Dichotomous measures indicating the school that each respondent attended were also included.

Descriptive and correlational statistics were examined. Next, path models in the Mplus 6.0 statistical software program (Muthén and Muthén, 2008–2010) were used to test the hypotheses. Models with more than one dependent variable—such as in this study—can be easily modeled using path analysis in Mplus. Each construct in the models was measured by a single variable (most variables were in fact summated scales) and was therefore observed rather than latent. The model tested is shown in Fig. 1. The statistical significance of model parameters was assessed by their *p*-values, with values less than .05 indicating statistical significance. Model fit was not assessed because the model was saturated

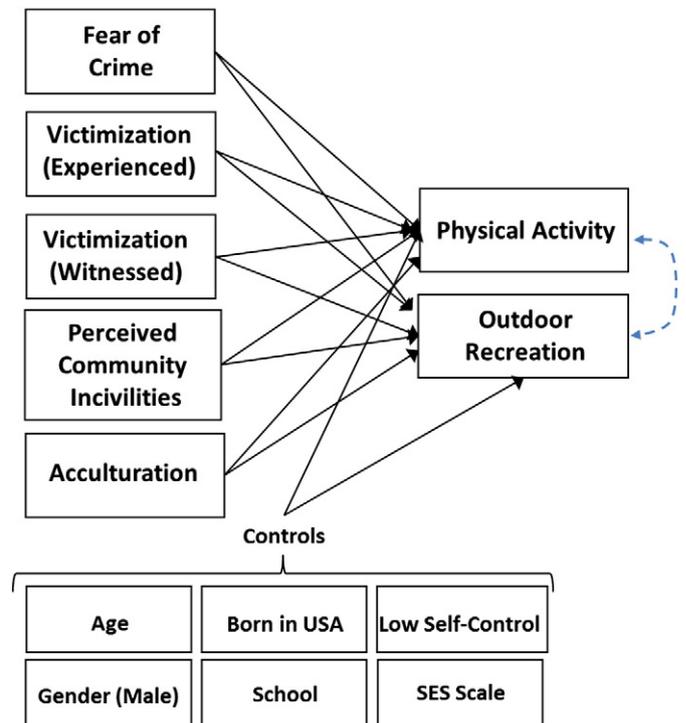


Fig. 1. Hypothesized model tested, predicting physical activity and outdoor recreation.

(Bollen, 1989). Specifically, one model on the full sample of 386 (those who did not report gender were removed) Latino adolescent respondents was estimated, predicting the PA and outdoor recreation scales as dependent variables. Because the dependent variables were normally distributed (although the distribution of the physical activity measure had slight aberrations and could be considered slightly polykurtic), standard path model procedures in Mplus were deemed appropriate.

#### Qualitative phase

Twenty-five interested students who perceived crime to be a problem in their neighborhood were randomly selected to be interviewed about their experiences with crime and the extent to which crime affected their PA and outdoor recreation. Interviews lasted 20–35 min and were conducted in English by the study's authors. Students were interviewed on school grounds. Each student was offered a \$30 gift card for their participation. The sample included 13 middle school children (7 male and 6 female) and 12 high school students (7 male and 5 female). All students (except one who was born in Mexico) were second-generation immigrants from Mexico.

Interviewees were asked about crime levels in their neighborhoods, and whether fear of crime, crime victimization and perception of incivilities affected their recreation participation, and what they did to increase their safety. High school students were additionally asked whether there were any differences based on age in how fear of crime affected their recreation. Interviews were tape recorded and transcribed verbatim.

Interview data were analyzed using the constant comparative method (Glaser and Strauss, 1967). Each interview transcript was reviewed and major themes and sub-themes were isolated. As the analyses continued, the initially identified sub-themes were revised and other sub-themes were added. New observations and emerging themes were explored in subsequent reviews. After the completion of all interviews, the transcripts were reread again and relevant data that confirmed and/or contradicted emerging themes were identified. Due to the sensitive nature of the study both the surveys and the interviews were anonymous and thus transcripts could not be sent for verification and feedback. In order to confirm the reliability of the data, informal conversations were conducted with school personnel and individuals actively involved in the local Latino community.

## Results

### Descriptive statistics

Descriptive statistics for all variables are presented in Table 1. The age range for middle school students was 12–16 years old. More than half (51.3%) were girls. Close to 80% were U.S. born. Their families came mostly from Mexico (88.9%). The age range for high school students was 14–19 years old. More high school females than males participated in the study (54.5% vs. 44%). Almost 80% of them were born in the U.S. and almost all (96.5%) were of Mexican descent. The majority of youth had low values for the acculturation measure (the mean was 2).

### Survey results

Table 2 presents the standardized coefficients associated with each predictor in the path model for PA and outdoor recreation. The model had zero degrees of freedom, meaning it was just identified (i.e., a saturated model) and model fit could not be assessed. This does not indicate a problematic model; R-squared values for the structural equations predicting PA and outdoor recreation were 0.188 and 0.190, respectively. The correlation between the two PA outcomes was 0.377 ( $p < .001$ ). Results confirmed the hypothesis that Latino adolescents who expressed greater fear of crime also reported engaging in significantly less PA and outdoor recreation. Victimization did not exhibit a significant association with PA or outdoor recreation. Those who perceived greater levels of incivilities also reported engaging in significantly less outdoor recreation, but community incivilities had no significant association with PA. These main associations of interest (or lack thereof) were true while statistically controlling for respondents' age, gender, assimilation level, country of birth, socioeconomic status, and school of attendance.

### Interview results

Most of the children believed multiple aspects of crime were serious problems in their neighborhood, and this influenced their ability to be physically active outside. Many reported they had been shot at, beaten, and/or had their property stolen and that they had witnessed drug use, gang shootings, and people being assaulted and killed.

They described neighborhood locations that were most affected by crime, and where they felt particularly unsafe. Specifically, fear of

**Table 1**  
Descriptive Statistics for Variables (N = 386).

	Min	Max	Latinos (N = 386)	
			Mean or %	Std Dev
<i>Dependent variables</i>				
Physical activity scale	0	7	3.67	2.19
Outdoor recreation scale	0	3	2.31	.85
<i>Independent variables</i>				
Acculturation scale (>assimilation)	0	8	2.00	2.29
Age	12	19	14.53	1.52
Born in United States	0	1	80%	.40
Crime victimization (experienced)	0	1	8%	.27
Crime victimization scale (witnessed)	0	2	.62	.57
Fear of crime scale	1	3	1.72	.34
Low self-control scale	1	3	1.38	.41
Male gender	0	1	47%	.50
Perceived community incivilities	1	3	2.33	.41
School 1 (high school)	0	1	32%	.47
School 2 (high and middle school)	0	1	44%	.50
School 3 (middle school)	0	1	24%	.43
Socioeconomic status scale	0	9	4.22	1.93

Source: *Salud America!* surveys of Latino adolescents in Chicago, Illinois.

**Table 2**

Decomposition of Associations of Physical Activity and Outdoor Recreation (N = 386).

Predictors	Physical activity scale	Outdoor recreation scale
	Direct	Direct
Acculturation scale (>assimilation)	−0.089	−0.170 ***
Age	−0.104	−0.173 **
Born in United States	−0.019	−0.044
Crime victimization (experienced)	−0.046	−0.005
Crime victimization scale (witnessed)	0.098	0.081
Fear of crime scale	−0.148**	−0.121 *
Low self-control scale	−0.065	−0.007
Male gender	0.168***	0.115 *
Perceived community incivilities scale	−0.002	−0.135 **
School 1	−0.234***	−0.125 *
School 2 (omitted, reference school)	−	−
School 3	0.024	0.103
Socioeconomic status scale	0.095*	0.094 *

Source: *Salud America!* surveys of Latino adolescents in Chicago, Illinois. Table entries are standardized coefficients in a structural equation models estimated using Mplus 6.0 (Muthén and Muthén, 1998–2010). Dashes denote paths not possible according to the model. With zero degrees of freedom, the model was just identified and model fit could not be assessed; however, for the structural equation predicting physical activity, R-squared was 0.188 and for the equation predicting outdoor recreation, R-squared was 0.190. Residual variances in the two structural equations predicting physical activity and outdoor recreation were correlated at 0.327\*\*\*. Statistical significance levels: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

crime prevented them from visiting places that required crossing gang boundaries and restricted their participation in activities that took place after dark (e.g., school sport practices and after school activities that ended after dark). School grounds were considered safe during the day, but not after dark. A 15-year-old male told a story about a shooting that occurred when he was playing soccer outside his school. Crime limited his ability to play soccer since the field was close to the gang boundary where shootings occur and where he has been approached by gang members. A 10th grade male reported that he could not play sports on a school team because practices were in the evening and it required him to cross gang boundaries.

Sometimes it [crime] does affect me. Like this year I didn't do any sports because it was at night and I would have to come to school at 6 to practice and I would leave school at 8. And I would have to walk back home at the nighttime, so I was like... "No. I am not going to do it."

Parks were considered unsafe by most of the children. A male high school student recalled an incident that happened when he was playing soccer with his friends in a nearby park:

We were there playing for 35 min and we just saw some gang bangers coming and start checking us, like, "What you want?" "Where you come from?" ... all that. We knew they were gang bangers because they were in a group and they were representing.

The boy stopped playing soccer in the park after this incident. When asked what he was afraid of, he replied, "That I'll probably get shot, or just that they'll beat me up." Similarly, a girl from the 6th grade commented, "Sometimes my mom told me to go to parks, but I say 'no' because I'm afraid. Because over there, there's shooting. Last time, when I went there, I heard some shootings so I don't feel safe." A male 6th grader was afraid to play ball in the park because "I might hit them [the gang members] with the ball and they might get mad." When asked could happen to him in the park, he replied, "Getting killed."

Fear of crime also influenced the quality of their outdoor experiences because they had to be vigilant at all times. For instance, a 9th grade girl said, "I can't go outside because I'm scared and I can't go

outside to play in the snow. And I can't go to the park." Similarly, a 15-year-old boy commented, "It [crime] affects my life with not being able to go out as much as I can or want to. It's harder to go to a friend's house without worrying if I'm going to get shot or not."

## Discussion/Conclusions

This study examined how fear of crime, crime victimization, and perceived level of incivilities in the community affected PA and outdoor recreation among Latino adolescents. The qualitative findings supported and extended the quantitative findings. They suggested gang territories and related crime led to avoidance behavior with regard to both organized sports and unsupervised outdoor recreation. Respondents repeatedly mentioned gang violence as an issue that influenced their daily behavior, making it difficult to participate in PA and outdoor recreation. Parks were particularly problematic because they represented common gathering areas for gang members. The interviews provided a nuanced understanding of what caused fear among the youth, and helped explain the behavior ramifications associated with fear. Additionally, the qualitative findings suggested that crime victimization might have a complex relationship with PA and outdoor recreation in that many youth had witnessed and experienced victimization, but continued to play sports and participate in outdoor recreation activities. They learned how and when to avoid certain places and tried to navigate the landscape to remain safe.

The findings of this study coincide with the mixed findings reported in literature reviews, although they did not distinguish different ethnic/minority populations (Ding and Gebel, 2012; Foster and Giles-Corti, 2008). Ding and Gebel (2012) noted their findings suggested "differential effects from different domains of safety" (p. 450). Although this study provides some insights, future research is needed given the study's limitations. The data were cross-sectional and thus causality cannot be determined. The sample was limited to one Latino neighborhood in Chicago, and is not generalizable to other Latino communities and/or racial and ethnic groups. Additionally, PA and outdoor recreation were self-reported, as opposed to using more objective measures such as accelerometers. Nonetheless, there are reasons to believe that fear of crime is an important factor when considering PA among youth, and thus further research is warranted to elucidate its connection to this important topic. Longitudinal research could uncover whether levels of outdoor recreation explain the relationship between crime, fear and physical activity.

## Conflict of interest

The authors declare that there are no conflicts of interests.

## Acknowledgments

This study was funded by the Robert Wood Johnson Foundation through its national program, Salud America! The RWJF Research Network to Prevent Obesity Among Latino Children ([www.salud-america.org](http://www.salud-america.org)). Salud America!, led by the Institute for Health Promotion Research at The University of Texas Health Science Center at San Antonio, Texas, unites Latino researchers and advocates seeking environmental and policy solutions to the epidemic.

## References

- Bollen, K.A., 1989. *Structural Equations with Latent Variables*. Wiley, NY.
- Center for Disease Control and Prevention, National Center for Health Statistics, 2010. Health, United States, 2009: With Special Feature on Medical Technology. <http://www.cdc.gov/nchs/data/abus/abus09.pdf>.
- Crutchfield, R.D., Matsueda, R., Drakulich, K., 2006. Race, labor markets and neighborhood violence. In: Peterson, R., Krivo, L., Hagan, J. (Eds.), *The Many Colors of Crime*. NYU Press, New York, pp. 199–220.
- Ding, D., Gebel, K., 2012. Built environment, physical activity, and obesity: what have we learned from reviewing the literature? *Health Place* 18, 100–105.
- Ding, D., Sallis, J.F., Kerr, J., Lee, S., Rosenberg, D.E., 2011. Neighborhood environment and physical activity among youth: A review. *Am. J. Prev. Med.* 41, 442–455.
- Eitle, D., Turner, R.J., 2002. Exposure to community violence and young adult crime: The effects of witnessing violence, traumatic victimization, and other stressful life events. *J. Res. Crime Delinq.* 39, 214–237.
- Foster, S., Giles-Corti, B., 2008. The built environment, neighborhood crime and constrained physical activity: an exploration of inconsistent findings. *Prev. Med.* 47, 241–251.
- Glaser, B., Strauss, A., 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Publishing, Co., Chicago, IL.
- Johnston, L.D., Delva, J., O'Malley, P.M., 2007. Sports participation and physical education in American secondary schools: current levels and racial/ethnic and socioeconomic disparities. *Am. J. Prev. Med.* 33 (4 Suppl.), S195–S208.
- Kerr, J., Sallis, J., Rosenberg, D., Norman, G., Saelens, B., Durant, N. Active Where? Survey. <http://www.activelivingresearch.org/node/11951>.
- Muthén, L.K., Muthén, B.O., 1998–2010. *Mplus User's Guide*, sixth edition. Muthén & Muthén, Los Angeles, CA.
- Perkins, D.D., Taylor, R.B., 1996. Ecological assessments of community disorder: Their relationship to fear of crime and theoretical implications. *Am. J. Community Psychol.* 24, 63–107.
- Prochaska, J.J., Sallis, J.F., Long, B., 2001. A physical activity screening measure for use with adolescents in primary care. *Arch. Pediatr. Adolesc. Med.* 155, 554–559.
- Ross, C.E., 2000. Walking, exercising, and smoking: does neighborhood matter? *Soc. Sci. Med.* 51, 265–274.
- Ross, C.E., Mirowski, J., 2001. Neighborhood disadvantage, disorder, and health. *J. Heal. Soc. Behav.* 42, 258–276.
- Singh, G.K., Yu, S.M., Siahpush, M., Kogan, M.D., 2008. High levels of physical inactivity and sedentary behaviors among US immigrant children and adolescents. *Arch. Pediatr. Adolesc. Med.* 162, 756–763.
- Unger, J.B., Gallaheer, P., Shakib, S., Ritt-Olson, A., Palmer, P.H., Johnson, C.A., 2002. The AHIMSA acculturation scale: a new measure of acculturation for adolescents in a multicultural society. *J. Early Adolesc.* 22, 225–251.
- Whitt-Glover, M.C., Taylor, W.C., Floyd, M.F., Yore, M.M., Yancey, A.K., Matthews, C.E., 2009. Disparities in physical activity among US children and adolescents: prevalence, correlates, and intervention implications. *J. Public Health Policy* 30 (Supplement 1), S309–S334.
- Zhu, X., Lee, C., 2008. Walkability and safety around elementary schools economic and ethnic disparities. *Am. J. Prev. Med.* 34, 282–290.