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Short Communication

Environmental barriers to children's outdoor summer play

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Abstract

Background. Childhood obesity rates have risen markedly in the U.S. over the last 25 years. Apart from the nutritional considerations that are well-documented, child overweight is associated with low levels of physical activity (PA). Although a number of studies address the environmental barriers to adult PA, research on children is limited. The purpose of this study was to explore the barriers to outdoor play in the summertime as perceived by children themselves.

Methods. In the summer of 2012, 281 children ages 6–14 years were surveyed as to things that would keep them from playing outdoors.

Results. The top three factors named by boys were bad weather, fear of gangs/crime, and preferring indoor activities like video games. Girls also named bad weather most often, followed by it being too hot outdoors, and fear of gangs/crime.

Conclusion. Children view unsafe neighborhoods and bad weather as the primary barriers to outdoor play. Allowing access to unused school gymnasiums may be a useful strategy for facilitating children's PA in the summer months.

INTRODUCTION

Childhood obesity is now acknowledged as a national epidemic, with obesity rates rising dramatically for U.S. children age 6-11 over the last 25 years, increasing from 11.3% in 1988-94 to 18.4% in 2009-10 [1, 2]. Given the rapidity with which the prevalence of child obesity has so markedly increased, it is reasonable to attribute this change to non-genetic causes, namely behavioral and environmental.

Apart from the nutritional considerations that are well-documented [3], child overweight is associated with low levels of physical activity (PA). Although a number of studies show associations between social or physical environmental factors and adult PA [4,5], research on children is limited [6]. Furthermore, influences on children's PA are likely to vary from those for adults because of different preferred activities, fewer time constraints, and limited money and transportation [7]. While factors such as less time for physical education at school and more time spent in sedentary screen pursuits (e.g., video games) have been blamed to a large degree [8], the physical environment itself may present barriers to adequate levels of PA by children. In a study using concept mapping, for example, high school-age students identified negative environmental influences such as bad weather, darkness, and "things that bite" among the various factors that affect their PA [7]. Limited access to safe and convenient play areas has also been hypothesized as a barrier to their attaining suitable levels of outdoor activity [9, 10]. In turn, children of elementary school age who live in neighborhoods perceived as less safe for outdoor play are more likely to persist in being overweight than children from safer neighborhoods [11].

Summer vacation provides children with ample opportunity for playing out of doors. With temperatures warmer and more hours of daylight, research indicates that children's outdoor PA is indeed greater in the summer [12]. Since little is known

regarding what may reduce their willingness to play outdoors, the purpose of this study was to explore the barriers to outdoor play in the summertime as perceived by children themselves.

METHOD

Recent studies were reviewed in order to generate a list of 40 environment-related influences that children might endorse as a reason for choosing not to play outdoors [7, 13]. Two experts in the field of child development considered each item, and after combining some items (e.g., crime and gangs) and discarding others as being redundant (e.g., free space, green space, open lots) or as inappropriate for asking of children (e.g., air pollution, prostitution), the list was reduced to 12-items. Besides its brevity, the questionnaire was formatted to facilitate ease for its completion by a child. That is, spaces were available at the top of the survey sheet for the child to print his/her name, age, hometown, and indicate if a boy or girl. The list of items appeared below these entries, with the instruction to circle the number 1, 2, or 3 to indicate "very," "sometimes," or "not" important, respectively, with regard to various things that might keep them from playing outdoors. For younger children with lesser reading ability, parents were free to assist in survey completion by reading the questions and recording their child's responses.

Over two successive weekends in August, 2012, tables were set up at 4-H booths at four county fairs in New Jersey (two fairs each weekend) with signs inviting children to complete a brief survey and receive a small toy in return. Of the 300 surveys completed, 19 were discarded due to missing information such as sex or age, resulting in a sample of 123 boys and 158 girls. The mean age of the children surveyed was 10-years-old (range 6 to 14 years), with the boys (M = 9.91, SD = 2.25) and girls (M = 10.14, SD = 2.14) approximately the same. Racial/ethnic data was not recorded, but the children at all four sites were predominantly non-Hispanic white.

RESULTS

Average ratings for each item, by child gender, appear in Table 1. Recall that rating an item as "1" indicated "Very important," hence, a lower number signifies greater importance. For boys, the items rated as most important were bad weather (i.e., rain and lightning), no street lights, and fear of gangs/crime. For girls, fear of gangs/crime, fear of strangers, and bad weather averaged ratings that denoted the greatest importance. Bad weather earned nearly identical ratings by boys and girls. Boys rated indoor activities as a likelier reason for not playing outside significantly more than girls. Along with traffic, boys appeared to rate a fear of stray animals as the least likely reason to not play outdoors, while girls gave stray animals even less credence.

At the end of the survey children were additionally asked to name the #1 thing that would make them not want to play outside. Based on percentages, the top three factors named by boys were bad weather (38%), fear of gangs/crime (11%), and preferring indoor pursuits like video games (10%). Girls also named bad weather (24%) most often, followed by it being too hot outdoors (16%), and fear of gangs/crime (13%).

Table 1. Mean ratings for "Things that keep you from playing outdoors"

	Boys		Girls	
	Mean	**SD**	**Mean**	**SD**
No safe play space	2.23	.83	2.06	.84
Bad weather	1.96	.57	1.97	.64
Fear of strangers	2.12	.86	1.95	.83
Mosquitoes	2.15	.85	2.22	.80
No one to play with	2.24	.72	2.25	.73
Parents don't allow you	2.06	.83	2.21	.83
Fear of stray animals	2.29	.82	2.50*	.79
Prefer to play indoors	2.06	.71	2.27**	.63
Too hot outdoors	2.10	.75	2.09	.68
No streetlights at night	2.02	.83	2.07	.87
Traffic	2.29	.80	2.17	.85
Fear of gangs/crime	2.03	.91	1.92	.90

* p<.05 difference by gender, **p<.01

DISCUSSION

Although this study was not aimed at surveying the prevalence of childhood obesity, one limitation lies with our not having collected data on children's height and weight. While the far majority of the child participants did not appear to be overweight, it would have been useful to be able to calculate BMI in order to examine the possible preference for indoor play by heavier children. Nonetheless, the opportunity for outdoor play, and presumably for greater physical activity, is an important metric of human environmental quality.

Jilcott and colleagues [14] stressed the importance of "overcoming neighborhood barriers" in developing health-promoting environments that support outdoor PA. While adults often cite a lack of facilities as a primary barrier to exercising [4], neighborhood safety is also a consideration [15]. As opposed to discouraging exercise for health by adults, the present results are consistent with the premise that a fear of crime or gangs is also a barrier to outdoor play by children, and is viewed as such by children themselves [9, 10]. As a limitation of this survey was its reliance on a convenience sample of children who visited 4-H exhibits, this finding is somewhat striking, as the county fairs exuded an ambience of rural safety. Perhaps more significant, however, since outdoor play depends upon favorable weather conditions, the role of bad weather as a hindrance to child PA should not be underestimated [16]. As preventing child obesity is a better strategy than treating it after the fact, public health efforts should pursue all avenues available to promote PA. Allowing access to school gyms that typically go unused, where bad weather would be inconsequential, might be a fruitful neighborhood strategy for facilitating children's PA in the summer months.

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