

The Food Environment Through the Camera Lenses of 9- to 13-Year-Olds Living in Urban, Low-Income, Midwestern Households: A Photovoice Project

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ABSTRACT

Objective: To pilot Photovoice methodology with low-income, urban 9- to 13-year-olds to gain insight about their food environment and to determine whether this methodology was engaging and acceptable to them.

Methods: Photovoice methodology was used to allow children to represent their food environment. Twenty male and 9 female, low-income, 9- to 13-year-old children participated. Quantitative photograph analysis included quantity taken and usable internal/external and social environment and healthfulness categorizations. Qualitative analysis was conducted through open coding of interview transcripts.

Results: A total of 345 usable photos were taken by the children ($n = 29$), depicting both healthy and unhealthy foods. Four themes were identified (1) food characteristics; (2) social environment; (3) kitchen, cooking, and dining environments; and (4) food insecurity. Unhealthy food was most readily available to children. Children reported a lack of functioning kitchen equipment and multiple physical and environmental challenges to consuming a healthy diet. Food insecurity was prevalent. Food stamps and food pantries were used to fill gaps in the home food supply.

Conclusions and Implications: Photovoice can be effective in engaging children in conversation about their food environment and increases understanding of their experiences with food. Photovoice can provide insight into the household food environments. This information can be used to tailor interventions to better reflect the living environment and eating behaviors in low-income populations.

Key Words: Photovoice, food environment, children, low-income, food insecurity (*J Nutr Educ Behav.* 2015;47:437-445.)

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INTRODUCTION

The food environment has an integral role in preventing or exacerbating childhood obesity. Children's dietary habits are influenced by various aspects of their food environment, including home, school, after-school programs, and cultural factors.¹⁻³ Environmental factors that affect children's diets are interesting because they may have contributed to the increase in child obesity rates over the past few decades.⁴ Childhood

obesity is of concern because of the increased risk of chronic diseases such as hypertension, type 2 diabetes, and hyperlipidemia.^{5,6} Low-income, ethnically diverse children are at a higher risk for obesity compared with moderate- to high-income Caucasian children.^{6,7} To improve the dietary habits of children living in low-income, urban households and reduce obesity rates, it is necessary to learn about the urban food environment from a child's point of view, which may provide a more

comprehensive understanding of the factors affecting their consumption patterns that might not otherwise be apparent.

Photovoice has been used to give a voice to populations by representing their experiences through photographs and interviews.⁸ This methodology was first used by Wang and Burris⁹ to study reproductive health in rural Chinese women ($n = 62$). Photovoice has been used effectively with different age and cultural groups.⁹⁻¹¹ In London, Photovoice was used with children ($n = 39$) to determine how the environment influenced diet and physical activity; researchers found that children photographed their home, school, and neighborhoods as the places where they obtained food.¹² In Canada, it was used to learn about factors affecting food choice among college students ($n = 28$); researchers found that the environment, cost, the media, and knowledge were influencing factors.¹³ In the US,

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Findholt et al^{14,15} used Photovoice with rural Caucasian teenagers ($n = 6$) and found that limited access to healthy foods and promotion of unhealthy foods were barriers to a healthy diet. Research into the application of Photovoice with an urban, preadolescent population is needed.

Photovoice may be appealing to children because it is a creative way for their voice to be heard. Children use digital media on a regular basis; thus, incorporating photography into data collection methods may be more effective to engage children. Lambert et al¹⁶ found that a combination of data collection methods, including visual methods, was most effective when conducting research with sick children ($n = 4$). Furthermore, Clark¹⁷ suggested that photography may provide researchers with the opportunity to build trust with children and Findholt et al¹⁴ found that Photovoice promoted leadership in youth. Finally, Photovoice may attract children who are uncomfortable in group settings or with expressing their thoughts verbally.

Photovoice has been identified as a potentially effective but underused method for collecting health and nutrition data.^{12,16,18} The purposes of this project were to pilot Photovoice methodology with low-income, urban 9- to 13-year-olds to gain insight into their food environment and to determine whether this methodology was engaging and acceptable to them.

METHODS

This project used Photovoice methodology with 9- to 13-year-olds who lived in Supplemental Nutrition Assistance Program (SNAP)-eligible households in Minnesota. Recruitment took place at after-school programs. A contact person within the organization assisted in recruitment. Parental consent and child assent forms were completed before enrollment. Children received a small monetary incentive for their participation (\$5 at enrollment, \$5 when the camera was returned, and \$5 after the interview). This study was approved by the University of Minnesota's Institutional Review Board.

Data Collection

This study was conducted between May and August, 2013. Children met in small groups (2–5 children) to gather demographic data, measure height and weight, and explain proper camera use including the need to obtain consent from any person they photographed. Social Cognitive Theory (SCT)¹⁹ was used as the theoretical framework for photographs. The authors selected SCT because it examines how interactions among environmental, personal, and behavioral factors can influence dietary behavior and SCT has been used for research with children successfully in the past.^{2,20} Each child received a disposable camera (27 exposures) and was asked to take photographs of commonly consumed foods in the food environment including pictures at home, at school, and in the community, and of people who influenced food consumption. Children were provided examples for photography based on SCT: (1) the physical environment (cabinets, cupboards, the refrigerator, where food is prepared, and where food is consumed); (2) the social environment (with whom you eat and who prepares your food); (3) behavioral examples (how much food you eat and foods you eat most often); and (4) personal examples (favorite foods and taste preferences). The researchers collected completed cameras and developed the pictures.

Individual interviews were conducted with the children individually or in pairs within 2 weeks after the cameras were turned in to be developed. During interviews, children met with a trained interviewer to discuss 3–5 of their photos about which the researchers wanted to learn more (photos represented the environment, behavioral, and personal concepts of SCT). Interview questions included: (1) What is this picture of? (2) Tell me about what was happening when you took this picture? (3) How does this picture represent the food you eat? At the end of the interview, children were given the option to describe another photo of their choice and were asked to identify 1 photo that best described their food environment. Interviews lasted 10–30 minutes. To gather children's opinion about us-

ing Photovoice, researchers asked each child how he or she felt about this project and whether he or she enjoyed taking photos at the end of the project.

Height and weight were measured for each child with outer clothing and shoes removed at the beginning of each focus group. A stadiometer (model 217, SECA, Chino, CA, 2008) was used to measure height and an electronic medical scale (Health-o-Meter 320KL, SECA) was used to measure weight. Standard weights were employed to calibrate the scale before each focus group. Standard procedures were followed to measure height and weight.²¹

Data Analysis

The researchers analyzed photographs quantitatively by recording the picture content of usable photos, and qualitatively by selecting 3–5 photos for each child to discuss with a researcher. For quantitative analysis of photographs, the total number of photos taken, usable photos, internal environment photos (kitchen and dining environment), external environment photos (restaurant, fast food, and dining), and social environment photos were recorded. Food shown in each picture was categorized as healthy or unhealthy following guidelines established by the US Department of Agriculture's Economic Research Service.²² Frequency and descriptive data were analyzed from photograph coding, demographic information, and body mass index using SPSS for Windows Statistical Analysis Software Package (version 20.0, SPSS, Inc, Chicago, IL, 2012). Body mass index was calculated from actual height and weight data taken onsite and categorized using the Centers for Disease Control and Prevention growth charts.²³

For qualitative analysis, all interviews were audio taped, transcribed verbatim, and reviewed by 2 researchers using open coding methods.²⁴ Researchers independently read through and then coded each transcript. After coding transcripts, the researchers met to compare findings and identified themes and subthemes common across interviews.

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