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Perceived community environmental influences on eating behaviors: A Photovoice analysis

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ABSTRACT

People's perceptions of local food environments influence their abilities to eat healthily. PhotoVoice participants from four communities in Alberta, Canada took pictures of barriers and opportunities for healthy eating and shared their stories in one-on-one semi-structured interviews. Using a socioecological framework, emergent themes were organized by type and size of environment. Findings show that, while availability and access to food outlets influence healthy eating practices, these factors may be eclipsed by other non-physical environmental considerations, such as food regulations and socio-cultural preferences. This study identifies a set of meta-themes that summarize and illustrate the interrelationships between environmental attributes, people's perceptions, and eating behaviors: a) availability and accessibility are interrelated and only part of the healthy eating equation; b) local food is synonymous with healthy eating; c) local food places for healthy eating help define community identity; d) communal dining (commensality) does not necessarily mean healthy eating; e) rewarding an achievement or celebrating special occasions with highly processed foods is socially accepted; f) food costs seemed to be driving forces in food decisions; g) macro-environmental influences are latent in food decisions. Recognizing the interrelationship among multiple environmental factors may help efforts to design effective community-based interventions and address knowledge gaps on how sociocultural, economic, and political environments intersect with physical worlds.

1. Introduction

The rising overweight and obesity rates in developed and developing countries are associated with serious health implications (e.g., diabetes and cardiovascular diseases) and increased health care system costs (Di Cesare et al., 2016). Promotion of healthy eating is one response to this weight-related pandemic. Interventions targeting individual-level eating behavior changes (e.g., nutrition knowledge) have shown limited success with temporary positive effects on health (Sallis and Glanz, 2009). That is because eating behaviors are not individual choices disconnected from the environment where they are enacted (Brug, 2008). Rather, environment is a critical force that may restrict or increase people's abilities to make healthy eating decisions. Inherently of greater reach (Glanz et al., 2005; Sallis and Glanz, 2009), environmental strategies are more likely to produce sustainable changes, impacting risk factors and health outcomes by tackling the structural roots of unhealthy eating (WHO, 2004).

Socioecological approaches (Glanz et al., 2005; Sallis and Glanz, 2009; Story et al., 2008) are useful for researchers and policymakers to better address (i) the complex, dynamic nature of the environment and (ii) people's interactions with and within the multiple and interdependent facets of that environment. Environmental barriers to healthy eating have been described by many quantitative studies (Brug, 2008; Caspi et al., 2012; Kamphuis et al., 2006; Sallis and Glanz, 2009). Specifically, limited availability of and poor access to neighborhood grocery stores (Raine et al., 2008), high prices of fruits and vegetables (Kamphuis et al., 2006), and influences of family contexts on children's energy expenditures and fat intake (Engler-Stringer et al., 2014; Sleddens et al., 2015) are some of the myriad of environmental determinants affecting unhealthy diet and obesity (Caspi et al., 2012; Lovasi et al., 2009). However, systematic literature reviews have shown mixed results regarding the association between environmental factors and healthy eating (Brug, 2008; Caspi et al., 2012; Kamphuis et al., 2006; Papas et al., 2007) (e.g., conflicting results for the

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relationship of dietary outcomes with accessibility (Caspi et al., 2012) or with seasonal influences (Kamphuis et al., 2006)), great variability in the operationalization of both diet- and environment-related measures (Caspi et al., 2012; Engler-Stringer et al., 2014; Kamphuis et al., 2006; Papas et al., 2007), and a lack of replication studies using validated instruments (Brug, 2008; Engler-Stringer et al., 2014). Inconsistent findings may also stem from studies that have not examined how interconnections between physical and non-physical environmental factors (Papas et al., 2007) shape people's abilities to adopt or maintain a healthy diet. Previous reviews reveal critical, but understudied ecological factors, for example, cultural influences on eating patterns (Kamphuis et al., 2006), and policy-related influences like hours of operation for local food outlets (Caspi et al., 2012).

Community-based participatory research (CBPR) methods can be used to address some of these knowledge gaps by shedding light on the complex nature of the food environment from community members' perspectives (Engler-Stringer et al., 2014). CBPR can help reveal environmental features relevant to people that may have been under-investigated, including delineation of proximal and distal environmental factors affecting their abilities to eat healthily. Building upon a collaborative, equitable partnership between communities and academics, CBPR is an approach that promotes active engagement of community members in all research phases for the development of effective, sustainable interventions that benefit the community (Israel et al., 2001). CBPR's goal of mobilizing the co-produced knowledge for social action is well-aligned with ecological, health promotion strategies targeting community health and well-being improvement (Nykiforuk et al., 2011; Wallerstein et al., 2011).

PhotoVoice is a CBPR, qualitative method grounded in the Freirian approach to critical consciousness, feminist theory, and community-based approach to documentary photography (Wang, 1999). In this relatively new participatory method (Foster-Fishman et al., 2005), community members take photographs of their everyday realities with the objective of sharing their perspectives with the researchers on a topic under consideration, revealing the meanings and significance behind each image. The visual images trigger reflection, dialogue, and empowerment for social change among participants (Foster-Fishman et al., 2005; Strack et al., 2010; Wang, 1999). Through the discussion of the visual representation (i.e., photo-stories), researchers can gain a better understanding of the community members' perceptions and experiences, by seeing what the insiders see and hearing about the meaning of those images in the participants' own words. This community understanding of the relationships between people and their surroundings is crucial for refining measures and methodologies used to estimate the impact of environmental factors on healthy eating, and to address the conceptual gaps in understanding about the fundamental, defining characteristics of a community food environment. Further, this community knowledge can bring local experience and expertise to the development of policies and practices (Foster-Fishman et al., 2005) that aim to enhance local food environments, thereby increasing potential for intervention uptake and success (Strack et al., 2010).

The Photovoice literature on eating behaviors (Castellanos et al., 2013; Kramer et al., 2010) is small, but still growing. Few Photovoice studies (see, for example, Findholt (Findholt et al., 2011) and Watts (Watts et al., 2015)) have explored the interconnections between different environmental attributes, people's perceptions and food decisions in the light of socioecological approaches. This study builds upon the strengths of socioecological literature on food environment (Sallis and Glanz, 2009; Story et al., 2008; Strack et al., 2010) and reaps the multitude of benefits associated with the Photovoice method (e.g., critical dialogue allowing for in-depth exploration of issues (Castellanos et al., 2013; Foster-Fishman et al., 2005; Kramer et al., 2010; Wang, 1999); participants' empowerment (Foster-Fishman et al., 2005; Wang, 1999); and policy advocacy (Kramer et al., 2010; Wang, 1999)). By integrating both approaches, this study helps expand the current limited understanding of how multiple environmental factors are interconnected in shaping people's food decisions in order to inform health policies and programs. Thus, the purpose of this study was to identify the barriers to and opportunities for healthy eating among residents of four communities representing the heterogeneity of urban communities.

2. Method

Healthy eating data used in this study came from a larger PhotoVoice project that investigated residents' perceptions of how their community environment influenced their perceived abilities to be physically active and eat healthy food. This PhotoVoice project was the qualitative component of a three-year CBPR project, which aimed to examine the role of community environments in healthy behaviors and chronic disease prevention in different municipal contexts (Nykiforuk et al., 2011). Specific methods pertaining to the current analysis are described below. Ethical approval for the overarching project and PhotoVoice was granted by the Health Research Ethics Board (Panel B), University of Alberta.

2.1. Participants

Multiple purposive sampling strategies were used for participant recruitment from the general population, including advertisements in local newspapers, flyers posted in key community locations, and e-mails through local organization mailing lists. A total of 35 individuals participated across communities: 74.3% women; 11.4% were under the age of 24; 71.4% aged 25–64; 17.2% aged 65 or more; and 40% with household income of less than $50,000 CAD per year (Nykiforuk et al., 2011). A $30 CAD grocery store gift certificate was provided to each participant in appreciation of his/her participation. All participants provided informed consent.

2.2. Settings

Data was collected in four communities in the province of Alberta, representing a spectrum of urban communities as defined by Statistics Canada (Statistics Canada, 2012), which categorizes urban municipalities into small, medium, and large centers, depending on their population size. The Bonnyville and St. Paul are two small population centers (each with populations of about 5000). North Central Edmonton is a community located in the City of Edmonton, a large population center (population approx. 40,000). The Medicine Hat is a medium population center (population approx. 60,000). Detailed information about these municipalities can be found elsewhere (Nykiforuk et al., 2011). These four communities were chosen because of research team members' previous CBPR projects with these municipalities, which offered an opportunity to create sustainable health interventions (Nykiforuk et al., 2011). Their food environments differ from one another, particularly when comparing relative availability of fast-food restaurants to non-fast-food restaurants (e.g., family-run buffets and ethnic restaurants). Data (unpublished) obtained from the food environment audit tool used in the large CBPR project showed the fast-food restaurants represent 59.1% of the total food outlets in the medium population center. The diversity of the food environments in the studied small and large population centers is more evident, where fast-food restaurants account for only 22.4% and 12.6%, respectively.