



HHS Public Access

Author manuscript

Ecol Food Nutr. Author manuscript; available in PMC 2018 January 01.

Published in final edited form as:

Ecol Food Nutr. 2017 ; 56(1): 17–30. doi:10.1080/03670244.2016.1246361.

Barriers and Facilitators to Stocking Healthy Food Options: Viewpoints of Baltimore City Small Storeowners

Mhinjine Kim, Nadine Budd, Benjamin Batorsky, Carleigh Krubiner, Swathi Manchikanti, Greer Waldrop, Angela Trude, and Joel Gittelsohn*

Center for Human Nutrition, Bloomberg School of Public Health, Johns Hopkins University, 615 N. Wolfe Street, Baltimore 21205, MD, USA

Abstract

Receptivity to strategies to improve the food environment by increasing access to healthier foods in small food stores is underexplored. We conducted 20 in-depth interviews with small storeowners of different ethnic backgrounds, as part of a small store intervention trial. Storeowners perceived barriers and facilitators to purchase, stock and promote healthy foods. Barriers mentioned included customer preferences for higher fat and sweeter taste and for lower prices price, lower wholesaler availability of healthy food, and customers' lack of interest in health. Most storeowners thought positively of taste tests, free samples and communication interventions. However, they varied in terms of their expectations of the impact these strategies on customers' healthy food purchases. The findings reported add to the limited data on motivating and working with small store owners in low income urban settings.

Keywords

Corner stores; Nutrition intervention; Formative research; Food environment

Introduction

Obesity is a major public health problem in the United States, associated with tremendous future health, financial and psychosocial costs ((Wyatt, Winters, and Dubbert 2006). There are stark differences in local food environments in the US according to the community's racial and economic composition (Franco et al. 2008; Kumanyika et al 2014; Raja, Ma, and Yadav 2008), and these differences are thought to be related to obesity (Walker, Keane, and Burke 2010; Odoms-Young, Zenk, and Mason 2009; Gordon-Larsen 2014). In two recent studies, the retail food environment was found to be associated with childhood obesity; with supermarkets being protective, and small stores enhancing risk (Chen and Wang, 2016; Tang et al 2014).

Small stores, are common in urban settings, and can be characterized as generally <1000 square feet of floor space, owner-operated, and typically carry little or no healthier food items, such as fresh produce, low-fat dairy and whole grain products (Gittelsohn et al, 2012).

*Corresponding author: Joel Gittelsohn (jgittel1@jhu.edu).

Small grocery stores in low-income areas tend to have limited shelf and refrigeration space, making it harder for owners to store fresh and nutritious foods (Zenk et al. 2011), and are far less likely to sell produce than supermarkets (O'Malley et al. 2013). Moreover, healthy foods are commonly sold at higher prices at small stores in urban areas than supermarkets (Franco et al. 2007).

Based on this evidence, public health researchers and practitioners have targeted corner stores as a potential intervention venue for enhancing access to healthy foods and as a point of education to encourage dietary improvements in urban minority communities (Dannefer et al. 2012; H. Song et al. 2009; Raja et al. 2008). As a group, small store programs have been found to be successful in increasing sales and availability of healthy food options in food deserts (Bodor et al. 2010; Gittelsohn et al. 2008; Gittelsohn, Song, et al. 2010; Gittelsohn, Suratkar, et al. 2010; Martin et al. 2012; Dannefer et al. 2012; H. Song et al. 2009) However, most previous studies have largely failed to consider the perspectives of small store owners themselves – or at least, have failed to report on these perspectives. In order to provide appropriate and sustainable nutrition interventions, it is important to better understand the dynamics and logistics of corner store operations from the storeowners' perspectives. Some work with small store owners has been conducted – indicating the various factors which influence their stocking and pricing decisions (Song et al. 2011), how best to build rapport with them (Langellier et al. 2013), or in terms of their acceptance of imposed standards (Gittelsohn et al. 2012). However, the key role that store owners could play in promoting customers' healthy food purchasing and consumption while interacting with their customers, has not been thoroughly explored, and few qualitative studies have been solely conducted to understand the owners' cultural perspectives.

The aim of this study was to explore the perceived facilitators and barriers for small storeowners to purchase, stock, and promote healthy foods in Baltimore City, MD, USA. Furthermore, we sought to understand the commonalities and differences in owners' reasons behind stocking or not stocking healthy foods, particularly their understanding of customers' food preferences, communities' health consciousness, room for change, and role of store owners. The work was conducted as part of the formative research for a planned intervention trial with small stores (Budd et al. 2015).

We sought to address three research questions: 1) What do small store owners perceive as major barriers or facilitators in stocking and promoting healthy foods?; 2) How do these perspectives vary by ethnicity of store owner?; 3) What kinds of strategies do small store owners themselves see as being effective in stocking and promoting healthy foods in the targeted communities?

Methods

The present study was conducted in low-income Baltimore City. The city has 450 small food stores, which comprise two-thirds of the retail food environment in low-income areas (Buczynski, Freishtat, and Buzogany 2015). In-depth interviews and direct observations were collected in small stores between February and May 2012, in order to capture store owners' understandings of feasible and effective strategies for stocking healthy foods, and

learn about perceived barriers, as part of the formative research phase to implement a small food store intervention trial. A total of 24 small corner stores that represent multiple locations in East and West Baltimore were eligible, from those who agreed to be part of the trial (Budd et al. 2015). Stores were recruited based on the following criteria: (1) located in a low-income census tract of Baltimore City (>50% living below poverty level); (2) not part of a past Baltimore Healthy Stores (BHS) intervention (Gittelsohn et al. 2013; Gittelsohn, Suratkar, et al. 2010); (3) primarily African American consumers (>75%); and (4) at least 0.25 mile apart from each other. This study was approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

Investigators first conducted 17 in-depth interviews (IDIs) at 15 small stores. The majority of interviews were conducted one-on-one, but two IDIs were held with both the husband and wife co-store owners. All interviews were semi-structured, with the researcher freely exploring new ideas and questions brought up during the interview but using consistent lead questions and research themes. Store owners were asked to reflect on barriers and facilitating factors to the stocking and sales of healthier foods in their stores. Healthier foods were defined as foods low in fat, sugar, and salt. Out of the 15 stores, seven were owned by Korean Americans, four by African Americans, and four from other ethnic groups including Indian, Chinese, and Hispanic. Seven IDIs were conducted in Korean by two bilingual student investigators. These interviews were first transcribed in Korean and later translated to English for coding and analysis. Three additional interviews with Korean speaking store owners were conducted in June 2013, to explore whether store owners' viewpoints on healthy food promotion vary depending on their racial and ethnic backgrounds.

Line-by-line and focused coding of a single transcript was initially performed by all research investigators to generate an initial coding list and definitions. The next step involved conducting line-by-line and focused coding of five additional transcripts to reassess consensus among coders and to further refine the codes. The group's codebook was finalized after the initial steps had allowed us to identify key themes and develop associated axial codes, and then was utilized to re-analyze the first six transcripts and nine additional transcripts. Atlas.ti v.4.2 (Berlin) was then used to code the transcripts with the developed codebook, and for analysis of the data.

Finally, the outputs were generated for all quotes and were analyzed for themes related to barriers and facilitators of stocking and selling healthy foods. Additional three IDIs were first hand-coded by the single investigator with the group codebook. The researcher re-grouped prior codes, developed additional codes, and went through all the collected interviews with the new set of codes.

Findings

Perceived Barriers and Facilitating Factors to Stocking of Healthy Foods

Small store owners mentioned customer preferences and wholesaler availability of food products as critical factors and as potential barriers to stocking healthy foods. Most store owners, regardless of their ethnic background, also indicated customer demand, price

competitiveness, and amicable retailer-consumer relationships to be influential in promoting healthy food options to the local community.

Perceived customer preferences were mainly discussed in terms of taste, price, and health concerns.

Importance of Taste—When asked of popular or most selling products in the store, the majority of corner store owners emphasized the importance of taste for customers' purchasing decisions. Store owners felt that their customers' taste preferences and dietary patterns were formed early in childhood and extremely difficult to change. An African-American store owner stated, "...this is a community of salt and sugar... salt and sugar, and oil. And I know that sounds crazy, and it may not be fair in all respects, but you know a lot of people, this is just how people eat." Some interviewees mentioned how people in the community have become accustomed to the taste of unhealthy foods over a long period of time, and unless all the unhealthy items are removed from the stores, "customers will get it because it's there." One Korean American store owner added that it is exceptionally hard to initiate change because people in the neighborhood are "not used to trying new things" and that they will be "on alert when seeing new things." On the other hand, some Korean American participants mentioned offering their home-prepared, Korean traditional meals to close customers, and recalled a few customers enjoying them after they became accustomed to the new tastes.

Challenges Associated with Price Changes—Price was commonly brought up by store owners as a decisive factor behind customer preferences. Most participants felt that their customers are very sensitive to price fluctuations, down to the smallest unit. One participant summed up this point, "most of our customers think cents not dollars... and they already have a set price in their mind. If it is above that, they won't buy it." Another store owner emphasized that "when it comes to retail, this kind of retail, it's all about pennies," implying that customers would perceive even the slightest increases in price being high, making it further difficult to promote new, healthy items that may cost more than currently sold products.

When asked for their opinions on different pricing strategies, one interviewee specifically expressed concern over providing temporary price discounts. He explained that it is unrealistic to have multiple items on sale in corner stores because this type of store does not carry a large array of products to offer sales on. Most importantly, the store owner stated that it is much riskier to have price fluctuations in small stores because when the price goes back to normal in the post-intervention phase, as it will likely result in customer complaints and dissatisfaction. He referred to prior experiences when he had to give away products at an old price because the customers did not understand or accept the different prices they had to pay for the same item.

"Then my customers [would say] what is this, [storeowner's name], I got this yesterday at three dollars, why are you selling it at four dollars? It is not making sense."

-Korean American male store owner

This viewpoint was common among our informants, and may lead to store owners' unwillingness to bring in new products that show price differences from already-selling items, or to provide discounts to the customers.

Perception of Customers' Lack of Interest in their own Health—Store owners perceived a lack of interest among customers in improving their health, as another barrier to stocking healthier foods. Although they did observe elderly people or customers with particular health conditions like diabetes purchasing less-sugar, less-fat products compared to younger population, the majority of store owners confirmed that snack items or products that can be characterized as “junk food,” “sweets” or “unhealthy foods” are mostly purchased by their customers, followed by basic staple products like bread, sliced meats, milk, and other household goods.

Several small store owners observed the majority of their customers to be obese, and agreed that obesity and diet-related illnesses are an issue in the neighborhoods. However, they felt that their customers are less aware of its severity and lacked concern and interest in health and nutrition. One Korean American store owner concluded that African-American customers “just abandon themselves, their bodies” and “have given up their health”; this viewpoint was shared by store owners of other ethnicities as well.

“There really are not enough uh health conscious thinking people uh in this community. Uh and I'm not saying the whole community, I'm a board member of the community association too, so I'm can't say the whole community, but uh people like, people like fast food. They just want something fast and quick.”

-African American male store owner

It should be noted that while many owners expressed similar viewpoints, some also mentioned their customers' higher interest in healthy foods, noting increased requests for fruits and vegetables. Moreover, some participants perceived their customers to know and desire good choices, but described budgetary constraints or limited availability of healthy options in stores as major barriers.

Wholesaler Accessibility & Store Environment

While catering to their customers' preferences was the most important influence on corner store owners' stocking decisions, they reportedly were also affected by the offerings of the wholesalers, in respect to price and availability, and store capacity.

Wholesaler Price & Availability—In general, small store owners mentioned that they set their prices based on the price offered at wholesalers.

“It's mainly the price. Price, if they have...cheaper products there (at the wholesaler), I definitely will get it.”

-Indian American male store owner

Store owners strived to purchase items that are cheaper, although certain items they had no other choice but to get them, regardless of price, based on customer demand. Additionally, storeowners stated that when it comes to deciding which products to put on sale and how

much of a price discount should be made, “what the wholesalers have on sale” became the standard to classify sale items and decide the level of price discounts.

The availability of healthy food options in wholesalers was another influential factor in stocking these foods in corner stores. A storeowner mentioned how “products such as *low-sodium* are often *out of stock* with people who get around this territory, often they are not available [because] *supply* itself isn’t much.” He further explained that it would be hard to bring in healthy snack options to the store because it would require the owner to make additional trips to a new wholesaler that carries such items or specifically request delivery from the manufacturers.

As store owners are often constrained by time, lack of storage space and lack of staff, they tend to go to wholesalers that are closest to their stores to make daily shopping efficient. Some store owners further mentioned that products that they get at their convenient wholesalers may not be at the cheapest price available, but they would purchase them anyway.

Variation in Store Owner Perceptions

While our sample had variability in ethnicity, we did not find substantial differences in perceptions by ethnicity of the store owners. One exception to this is that some Korean American store owners emphasized family values and education as additional factors that shape customers’ preferences. Two store owners felt that children’s habitual consumption of unhealthy snack foods was related to their mothers’ lack of care at home. These two storeowners referenced their own understanding of traditional Korean family culture -- where a mother attends to her children by preparing meals, and noted that such culture is not shared in the neighborhood and that because “[when kids] wake up, mom is sleeping [...] mothers don’t care [about their kids],” then children come to the store and buy chips and soda beverages as breakfast.” Another participant shared a similar viewpoint and stated that “parents should change so children (will change),” suggesting that interventions first aiming to change parents or caregivers’ food and dietary habits should be preferred over those targeting children.

Although not related to ethnicity, we did find considerable variation in storeowner perceptions in terms of the role of their stores in the community. Some owners viewed their role as limited to the provision of food, while others saw a more expansive and engaged role. The way store owners described one’s store was closely related to how they perceived the feasibility and sustainability of healthy food stocking. One store owner mentioned how “everything here [in this store] is easy to grab” and emphasized that the store appeals to its customers by saying that “we got everything you want, it is right there, you get right away.” Another participant also agreed to the previous perspective, saying that his store is a “convenience store” where it carries “what the customers most likely gonna run out of.” While local residents go to “markets at bigger locations” to buy things like fruits, vegetables, meats, and other cooking spices, he observed that his store customers mostly come because “they have no choice but to run in,” not being able to afford to make another trip to supermarkets. Participants who shared such viewpoints expressed low expectations of

success in small store interventions, and perceived a limited role their stores could play in healthy food promotions.

A few informants saw other roles their stores could play. One African American store owner pointed out how his store differs from other stores, as “a new style of grocery,” and incorporated branding activities like giving unique names to deli sandwiches, innovative interior design, local brand coffee, and active community service. Although this store owner did recognize the hardships in stocking and promoting healthy foods in corner stores, he had prior experiences of introducing different vegetables and inventing original food menus for his customers. One participant said that freshness and good taste of his deli products coming from working diligently and using high quality ingredients that set his store apart from others, while another informant took pride in providing positive shopping conditions for customers. For example, he would “always try to have the store tidied up,” put up neat product displays, and also opened up the deli counter space to allow customers to come in freely and see the products being prepared. These store owners noted that customers appreciate their stores’ offerings because they are aware of differences in food quality or how products are presented -- implying that some customers may look for larger selection of healthy and fresh food options in small stores and welcome changes.

Other owners spoke of the importance of providing “service to the community” and acknowledging residents’ needs. Hiring store helpers within the local community, handing out free food and beverages for church, charity or neighborhood events, and even working with the police to actively monitor and prevent drug dealing from taking place were some examples of work done with such intentions provided by those store owners. One Korean American store owner felt her store was more than just a source of income for her family, and shared stories of providing emotional and spiritual support to customers partly as a spiritual counselor and neighborhood advocate. One’s identity as a “man of faith” or “mission” was often cited as motivation for certain store owners to run their businesses in a way that cultivates much deeper, and sometimes paternalistic, relationships with customers and that incorporates the provision of education and community service.

“I have the doors closed but I always open them so when they have problems they can always come to me, they would cry, I would pray for them while holding them.”

~Korean American, female store owner

“So I’m not doing this (just) to earn money here, I provide “service,” and from the profit that comes out I would make daily living, it’s (under) the purpose of helping each other.”

~Korean American, male store owner

Successful strategies for stocking and selling healthier foods

Store owners showed divergent viewpoints regarding the potential impact of their relationships with customers in a healthy food store program. The importance of having amicable relationship with one’s customers and communities was agreed upon, but the influence of this relationship on healthy food promotion was debated. Several store owners

stated that customers are more likely to “give a try” to new products and adhere to recommendations if they already have a trusting relationship with them. Although the degree of interactions would differ, most store owners agreed that they interact with certain customers, whom Korean store owners call “*Dan-gol Soun-nim* (regular customers),” beyond simple service encounters. Some store owners mentioned how these customers would come to them for general health or dietary advice, and recalled giving specific suggestions.

However, other storeowners did not perceive personal relationships as influential in customers’ decisions in trying or purchasing promoted healthy foods. They felt that the majority of customers utilize corner stores for limited purchases, or that they lack interest in eating healthy. Some store owners were concerned that discussing health and food purchasing choices could upset or offend people. A participant commented that his customers or American people in general seemed to put emphasis on having the freedom to purchase and eat what they want, and approaching them with specific guidance on private health issues could be taken as being offensive.

“In America, their life style is, ‘it’s mine and mine only,’ even if I am this fat, (they will be) insisting on what they eat, unless something terribly big happens to one’s health, they cling to their habits.”

~Korean American store owner

Small store owners commonly agreed that some forms of promotion were necessary when introducing new, healthier foods. In-store taste tests, free samples, and flyer-like communication materials were commonly suggested by our respondents to initially attract customers, and some mentioned the importance of long-term exposure to such strategies as essential in facilitating permanent change. Some interviewees predicted that customers may eventually refrain from purchasing less healthy items and switch to healthier alternatives once they learn about negative health impacts, but that this would take consistent and long-term exposure to nutrition information and health communication strategies.

Discussion

This is one of few papers to examine small store owner perspectives in relation to barriers and facilitating factors for stocking healthier foods, and provides additional context for understanding these relationships. By providing this context, the study defines and emphasizes the multi-level challenges small store owners face and perceive in stocking healthy foods.

Store owners in our study perceived a general lack of interest in healthy eating among their clientele, but other studies in Baltimore indicate different perceptions on the part of consumers (Dodson et al. 2009). In general, store owners perceived low demand for healthy foods by their customers, and were less likely to feel the need to stock healthy options, as has been seen previously (Gittelsohn et al. 2014). There appears to be a communication gap between the potential suppliers of healthy food (corner store owners), and those who would purchase it (community members). Enhancement of communication between customers and store owners to ensure sustainable and “reciprocal relationship of supply and demand for

healthy foods” has been recommended by us previously (Song et al. 2012; Gittelsohn et al. 2008). In particular, future small store-based interventions in low-income urban settings could provide opportunities for feedback to help store owners evaluate their performance in terms of understanding and meeting customer needs.

Our store owners recognized cost as a factor in customer purchasing decisions. Recent studies have found that consumers understand the importance of healthy eating, but report being unable to purchase them mostly due to high cost and unavailability (Zachary et al. 2013). Some of our small store owners supported these findings, mentioning incidents in which customers specifically requested bringing in fresh fruits and vegetables. However, they were mostly unwilling to stock them because only a small pool of customers made such requests. Stocking healthy foods is perceived to be high-risk investment resulting in possible sales loss. Small store customers may need help in effectively conveying their requests to store owners, and in challenging the presumed viewpoint of customers devaluing, or being disinterested in, healthy eating. Moreover, future research and intervention work should develop strategies to distinguish and lessen perceptual gaps between small store owners and customers regarding the request for healthy foods and expected availability in corner stores.

Overall, small store owners showed awareness of obesity being an issue in the community and the importance of changing residents’ diet with healthy, fresh foods. In general, store owners were aware of the positive association between “fruit and vegetable variety and the probability that a customer purchases fruits and vegetables,” and the need to increase the selection of fresh produce in their stores (Martin et al. 2012). However, many store owners additionally expressed low expectations of success in small store interventions and perceived a limited role their stores could play in healthy food promotions. In particular, those small store owners who saw their stores to have a strong convenience appeal, perceived their stores to play a less influential role in changing residents’ dietary habits. Gift cards to local wholesalers can be used to motivate small store owners to initially stock healthier foods, reducing their financial risk at the outset (Gittelsohn et al 2012).

One way to motivate small store owners to participate in store-based healthy food interventions could be healthy food store certification. Much attention has been given to small stores as ubiquitous food purchasing venues in these neighborhoods, but store owners tend to underestimate their stores’ role or impact in the community. Incentivizing store owners to take on social, ethical responsibilities as local business owners can be provided by certifying participating stores as ‘healthy stores’ or ‘community-serving stores,’ and possibly providing endorsement from the city government, health agencies, or community-based organizations as has been done successfully in other urban settings (ChangeLab Solutions, 2013). Given the certification, future studies should explore whether such recognition benefits the store with larger provision of healthy foods, increased sales, more amicable ties with residents, and other factors. If there is a stark difference in the food sales from customers favoring those stores, presenting and marketing their cases for neighboring stores to benchmark could be a powerful intervention strategy. If combined with legal regulations or store licensing requirements that constrict unhealthy choices, such interventions could help foster changes in the low-income, urban food environment

(Gittelsohn, Rowan, and Gadhoke 2012). Additionally, introducing innovative ways to empower store owners to participate, such as providing additional business training to help reduce profit loss risks from stocking changes, should be incorporated into corner store-based interventions (Gittelsohn, Suratkar, et al. 2010).

This study has several limitations. The sample size was small, and included only Korean American and African American store owners. Incorporation of other types of small store owners (e.g., Hispanic, South Asian, etc.) would be advisable to further explore the potential influence of storeowner ethnicity on healthy food stocking barriers and facilitating factors. Data were collected in low income neighborhoods in East and West Baltimore only. It is certainly possible that small store located in other parts of the city (or in other urban settings) might have different constraints, for example, using different wholesalers that provide enhanced or reduced access to healthier foods. These limitations are counter-balanced by several key strengths, including the use of stakeholder and investigator triangulation and emergent design, which enhance the credibility of our findings.

Conclusions

This study sought to explain the factors behind small store owners' stocking decisions and how each one can act as a barrier or facilitator in making healthy food interventions successful. Most of our findings were consistent with previous studies. Further investigation should explore if their perceptions are influenced by past experiences and lack of communication with their clientele. Although a majority of store owners agreed that long-term, continuous exposure of customers to healthy foods through communication and customers' own effort in making dietary changes are necessary for increasing demand for healthy foods and stockings of such items at retailers, there were gradations in store owners' expectations of the potential success of healthy food promotion interventions and in their willingness to participate in the project. Understanding small store owners' viewpoints and attitudes toward store-based intervention will significantly help in producing positive results within the allocated time and resources.

Acknowledgments

We are grateful to Baltimore community members, storeowners, and wholesale staff for their participation, input on the intervention design, and provision of data. We thank Jamie Harding and Amanda Behrens of Center for a Livable Future for creating GIS maps for store recruitment, and BHRR staff members; Debra Liu, Alison Cuccia Sarah Chung, Jodi Askew, Christine Kim, Emily Stone, Anna Kharmats, Cara Shipley, Maggie Leathers, Sarah Rastatter, Claire Welsh, Jae Kim, Yoon Lee, Hyunju Kim, Ah Young Shin, and Brittany Jock, who helped with intervention design and implementation, and data collection. This research was supported by the National Heart, Lung & Blood Institute (NHLBI) (Grant #1R21HL102812-01A1), the Abell Foundation, and the Johns Hopkins Global Obesity Prevention Center.

References

- Alkon AH, Block D, Moore K, Gillis C, DiNuccio N, Chavez N. Foodways of the urban poor. *Geoforum*. 2013; 48(0):126–135. DOI: 10.1016/j.geoforum.2013.04.021
- Kirkland A. The Environmental Account of Obesity: A Case for Feminist Skepticism. *Signs*. 2011; 36(2):463–485. DOI: 10.1086/655916 [PubMed: 21114084]
- Black JL, Macinko J. Neighborhoods and obesity. *Nutrition Reviews*. 2008; 66(1):2–20. [PubMed: 18254880]

- Bodor JN, Rice J, Farley T, Swalm C, Rose D. The Association between Obesity and Urban Food Environments. *Journal of Urban Health*. 2010; 87(5):771–781. DOI: 10.1007/s11524-010-9460-6 [PubMed: 20458548]
- Bodor JN, Ulmer VM, Futrell-Dunaway L, Farley TA, Rose D. The Rationale behind Small Food Store Interventions in Low-Income Urban Neighborhoods: Insights from New Orleans. *The Journal of Nutrition*. 2010; 140(6):1185–1188. DOI: 10.3945/jn.109.113266 [PubMed: 20410086]
- Budd N, Cuccia A, Jeffries JK, Prasad D, Frick KD, Powell L, Gittelsohn J. B'More healthy: retail rewards-design of a multi-level communications and pricing intervention to improve the food environment in Baltimore City. *BMC public health*. 2015; 15(1):283. [PubMed: 25885923]
- Changelab Solutions. [on April 13, 2016] Health on the Shelf: A Guide to Healthy Small Food Retailer Programs. 2013. Accessed at http://www.changelabsolutions.org/sites/default/files/Health_on_the_Shelf_FINAL_20130322-web.pdf
- Chen HJ, Wang Y. Changes in the Neighborhood Food Store Environment and Children's Body Mass Index at Peripuberty in the United States. *J Adolesc Health*. 2016 Jan; 58(1):111–8. DOI: 10.1016/j.jadohealth.2015.09.012 [PubMed: 26707233]
- Childs J, Lewis LR. Food Deserts and a Southwest Community of Baltimore City. *Food, Culture and Society: An International Journal of Multidisciplinary Research*. 2012; 15(3):395–414. DOI: 10.2752/175174412X13276629245849
- Dannefer R, Williams DA, Baronberg S, Silver L. Healthy Bodegas: Increasing and Promoting Healthy Foods at Corner Stores in New York City. *American Journal of Public Health*. 2012; 102(10):e27–e31. DOI: 10.2105/AJPH.2011.300615
- Dean J, Elliott S. Prioritizing Obesity in the City. *Journal of Urban Health*. 2012; 89(1):196–213. DOI: 10.1007/s11524-011-9620-3 [PubMed: 22042539]
- Drewnowski A. Obesity and the food environment: Dietary energy density and diet costs. *American Journal of Preventive Medicine*. 2004; 27(3, Supplement):154–162. DOI: 10.1016/j.amepre.2004.06.011 [PubMed: 15450626]
- Drewnowski A, Rehm C, Kao C, Goldstein H. Poverty and childhood overweight in California Assembly districts. *Health & Place*. 2009; 15(2):631–635. DOI: 10.1016/j.healthplace.2008.09.008 [PubMed: 19054705]
- Franco M, Diez Roux AV, Glass TA, Caballero B, Brancati FL. Neighborhood Characteristics and Availability of Healthy Foods in Baltimore. *American journal of preventive medicine*. 2008; 35(6):561–567. [PubMed: 18842389]
- Franco M, Nandi A, Glass T, Diez-Roux A. Smoke Before Food: A Tale of Baltimore City. *American Journal of Public Health*. 2007; 97(7):1178–1178. [PubMed: 17538047]
- Gittelsohn J, Rowan M, Gadhoke P. Interventions in small food stores to change the food environment, improve diet, and reduce risk of chronic disease. *Preventing chronic disease*. 2012; 9:E59. [PubMed: 22338599]
- Gittelsohn J, Franceschini MCT, Rasooly IR, Ries AV, Ho LS, Pavlovich W, Frick KD. Understanding the Food Environment in a Low-Income Urban Setting: Implications for Food Store Interventions. *Journal of Hunger & Environmental Nutrition*. 2008; 2(2–3):33–50. DOI: 10.1080/19320240801891438
- Gittelsohn J, Laska MN, Karpyn A, Klingler K, Ayala GX. Lessons Learned From Small Store Programs to Increase Healthy Food Access. *American Journal of Health Behavior*. 2014; 38(2):307–315. <http://doi.org/10.5993/AJHB.38.2.16>. [PubMed: 24629559]
- Gittelsohn, Joel, Song, HJ., Suratkar, S., Kumar, MB., Henry, EG., Sharma, S., ... Anliker, JA. An Urban Food Store Intervention Positively Affects Food-Related Psychosocial Variables and Food Behaviors. *Health Education & Behavior*. 2010; 37(3):390–402. DOI: 10.1177/1090198109343886 [PubMed: 19887625]
- Gittelsohn J, Suratkar S, Song HJ, Sacher S, Rajan R, Rasooly IR, Anliker JA. Process Evaluation of Baltimore Healthy Stores: A Pilot Health Intervention Program With Supermarkets and Corner Stores in Baltimore City. *Health Promotion Practice*. 2010; 11(5):723–732. DOI: 10.1177/1524839908329118 [PubMed: 19144859]

- Glass TA, McAtee MJ. Behavioral science at the crossroads in public health: Extending horizons, envisioning the future. *Social Science & Medicine*. 2006; 62(7):1650–1671. DOI: 10.1016/j.socscimed.2005.08.044 [PubMed: 16198467]
- Greenhalgh S. Weighty subjects: The biopolitics of the U.S. war on fat. *American Ethnologist*. 2012; 39(3):471–487. DOI: 10.1111/j.1548-1425.2012.01375.x
- Grier SA, Kumanyika SK. The Context for Choice: Health Implications of Targeted Food and Beverage Marketing to African Americans. *American Journal of Public Health*. 2008; 98(9):1616–1629. DOI: 10.2105/AJPH.2007.115626 [PubMed: 18633097]
- Hendrickson D, Smith C, Eikenberry N. Fruit and vegetable access in four low-income food deserts communities in Minnesota. *Agriculture and Human Values*. 2006; 23(3):371–383. DOI: 10.1007/s10460-006-9002-8
- Kumanyika SK, Swank M, Stachecki J, Whitt-Glover MC, Brennan LK. Examining the evidence for policy and environmental strategies to prevent childhood obesity in black communities: new directions and next steps. *Obes Rev*. 2014 Oct; 15(Suppl 4):177–203. DOI: 10.1111/obr.12206 [PubMed: 25196413]
- Martin K, Havens E, Boyle K, Matthews G, Schilling E, Harel O, Ferris A. If you stock it, will they buy it? Healthy food availability and customer purchasing behaviour within corner stores in Hartford, CT, USA. *Public health nutrition*. 2012; 15(10):1973–1978. [PubMed: 22230347]
- Morland K, Wing S, Diez Roux A, Poole C. Neighborhood characteristics associated with the location of food stores and food service places. *American journal of preventive medicine*. 2002; 22(1):23–29. [PubMed: 11777675]
- O'Malley K, Gustat J, Rice J, Johnson C. Feasibility of Increasing Access to Healthy Foods in Neighborhood Corner Stores. *Journal of Community Health*. 2013; 38(4):741–749. DOI: 10.1007/s10900-013-9673-1 [PubMed: 23546554]
- Odoms-Young AM, Zenk S, Mason M. Measuring Food Availability and Access in African-American Communities: Implications for Intervention and Policy. *American journal of preventive medicine*. 2009; 36(4):S145–S150. [PubMed: 19285205]
- Raja S, Ma C, Yadav P. Beyond Food Deserts: Measuring and Mapping Racial Disparities in Neighborhood Food Environments. *Journal of Planning Education and Research*. 2008; 27(4):469–482. DOI: 10.1177/0739456X08317461
- Song H, Gittelsohn J, Kim M, Suratkar S, Sharma S, Anliker J. A corner store intervention in a low-income urban community is associated with increased availability and sales of some healthy foods. *Public health nutrition*. 2009; 12(11):2060–2067. [PubMed: 19402943]
- Song HJ, Gittelsohn J, Anliker J, Sharma S, Suratkar S, Mattingly M, Kim MT. Understanding a Key Feature of Urban Food Stores to Develop Nutrition Intervention. *Journal of Hunger & Environmental Nutrition*. 2012; 7(1):77–90. DOI: 10.1080/19320248.2012.650968
- Song HJ, Gittelsohn J, Kim M, Suratkar S, Sharma S, Anliker J. Korean American Storeowners' Perceived Barriers and Motivators for Implementing a Corner Store-Based Program. *Health Promotion Practice*. 2011; 12(3):472–482. DOI: 10.1177/1524839910364369 [PubMed: 20424001]
- Tang X, Ohri-Vachaspati P, Abbott JK, Aggarwal R, Tulloch DL, Lloyd K, Yedidia MJ. Associations between food environment around schools and professionally measured weight status for middle and high school students. *Child Obes*. 2014 Dec; 10(6):511–7. DOI: 10.1089/chi.2014.0065 [PubMed: 25343730]
- Zachary DA, Palmer AM, Beckham SW, Surkan PJ. A Framework for Understanding Grocery Purchasing in a Low-Income Urban Environment. *Qualitative Health Research*. 2013; 23(5):665–678. DOI: 10.1177/1049732313479451 [PubMed: 23443333]
- Zenk SN, Schulz AJ, Hollis-Neely T, Campbell RT, Holmes N, Watkins G, Odoms-Young A. Fruit and Vegetable Intake in African Americans: Income and Store Characteristics. *American Journal of Preventive Medicine*. 2005; 29(1):1–9. DOI: 10.1016/j.amepre.2005.03.002 [PubMed: 15958245]