
Academics in the Aisles

Establishing a university-supermarket partnership

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The prevalence of overweight and obesity in the US is a serious public health problem. Nearly 70 per cent of US adults are overweight (body mass index (BMI) 25–29.9 kg/m²) or obese (BMI ≥30 kg/m²) combined; and 34 per cent are obese (Flegal et al. 2012). Seventeen per cent of US children and adolescents are obese (BMI ≥95th percentile using the BMI-for-age growth charts), a proportion that is higher than that of children and adolescents in other countries (Ogden et al. 2012). Having an unhealthy body weight increases the risk of chronic diseases, such as heart disease, type 2 diabetes, stroke and certain cancers. While diet and exercise are key determinants of body weight, environmental factors, such as poor access to fresh foods and lack of safety and infrastructure for physical activity, prevent the adoption of optimal health behaviours (Hill & Peters 1998; Sallis & Glanz 2006, 2009).

Supermarkets in the US are responding to the obesity epidemic by providing the unique asset of food, pharmacy and registered dietitians in one location to help grocery shoppers successfully manage diseases, improve nutrition and lower stress (Food Marketing Institute 2012). Children in healthy weight households report being more involved in food purchasing decisions and therefore many supermarkets give hands-on store tours during school field trips (Blischok 2010). Clearly, the supermarket plays an important role in dietary intake and health; it is the largest source of food in the American diet and the average shopper makes one to two trips to the supermarket per week (Black et al. 2010; Food Marketing Institute 2010; Guthrie, Lin & Frazao 2002; Morland & Evenson 2009; Nielsen, Siega-Riz & Popkin 2002; Yoo et al. 2006).

Intervention research should support policy changes that will make the healthiest food choice, the easiest food choice. This call to action encourages partnership between universities and communities, supermarkets and food manufacturers. Recent studies report that supermarket interventions are feasible and potentially efficacious, and shoppers have expressed a desire for supermarkets to offer health-conscious shopping programs (Gittelsohn et al. 2010; Huang et al. 2006; Milliron, Woolf &

Appelhans 2012; Ni Mhurchu et al. 2010; Vermeer, Steenhuis & Seidell 2009). Considering the multitude of stakeholders and agenda items included in university-supermarket collaborations, strong partnerships are crucial, but can be challenging to establish.

In this article, we share some of the barriers to and facilitators of university-supermarket research collaborations, with the intent of aiding other research groups that may be interested in conducting similar work. We partnered with a local supermarket chain to test the effects of a healthy shopping intervention on food purchases through in-person nutrition education focused on increasing purchases of fruits and vegetables, and decreasing purchases of high-fat foods. We conclude with a discussion of the lessons learned in the process of our university-supermarket partnership and adapt the recommendations outlined by Strong et al. (2009) for partnerships engaged in piloting community interventions.

PARTNERING WITH A SUPERMARKET

Objectives

Point-of-purchase interventions that focus on changing purchasing behaviours can be implemented in the supermarket setting. Several types of point-of-purchase interventions have been tested, including discounted healthier food items (e.g. fruit and vegetables), increased variety and availability of healthier food options, printed nutrition education materials, and increased advertising of healthful foods (Ernst et al. 1986; Kristal et al. 1997; Paine-Andrews et al. 1996; Rodgers et al. 1994). Our team wanted to pilot test a hybrid point-of-purchase shopping intervention and hypothesised that those who received the intervention would purchase more fruit and vegetables, and fewer high-fat foods.

Identifying a Partner and Reaching Consensus

In the early stages of the project, our research team approached several supermarket chains about the possibility of collaborating on a study designed to evaluate a supermarket point-of-purchase intervention that would include in-person nutrition education (Milliron, Appelhans & Woolf 2012). In most supermarkets, the store managers report to a corporate office with multiple departments and layers of authority. The research team found it difficult to identify and reach the appropriate individuals with authority to approve the project. The study failed to receive the support of the CEO of one supermarket chain, and was declined by the public relations division of another.

However, the public relations department of the supermarket chain, Bashas' Family of Stores, expressed initial interest in supporting the project, and referred the research team to a full-time registered dietitian who had been recently hired at the corporate level to lead health-related initiatives. Fortunately for us, the dietitian had already been developing a wellness program

called *Healthstyles-Eat Smart*®, which included point-of-purchase components. Further, she had been given approval to implement the program in most stores. After agreeing to discuss the potential for a university-supermarket partnership in research, supermarket stakeholders and the research team needed to reach consensus on store locations, dates and times of data collection, and study procedures that would be permitted (for example, the supermarket management provided guidelines on how the intervention could be delivered). The supermarket management expressed concern that the presence of a research team would have a negative effect on supermarket traffic, sales and their organisation's image. They were also sensitive to the potential for further solicitous interests from other organisations and/or individuals, such as children's groups wanting to sell cookies or candy in front of their stores, or consumer research groups interested in the personal information of its consumers. Our team was required to meet with Bashas' legal department to ensure that no activities were planned in conflict with any labour agreements or other union activities. Overall, the process of identifying potential partners for the research, negotiating the terms of an agreement, and eventually acquiring final approval to begin data collection took about 13 months.

After meetings with Bashas' corporate registered dietitian, public relations department and legal counsel, all parties agreed upon a study design that included multiple intervention stores (where the *Healthstyles-Eat Smart*® program had been implemented) and multiple comparison stores (where the *Healthstyles-Eat Smart*® program had not yet been implemented). The comparison and intervention stores were matched by census tracking of socioeconomic and other demographic data. However, just prior to beginning the intervention, the supermarket filed for Chapter 11 bankruptcy protection and 10 stores planned to close. Unfortunately, several of those 10 stores were comparison stores in our study. Re-creating the study to have a similar design was not possible because there were no additional comparison stores (where the *Healthstyles-Eat Smart*® program had not been implemented) that matched the demographics of the intervention stores. Hence, the result was a modified study that focused on testing the impact of in-person nutrition education on purchasing (in addition to the *Healthstyles-Eat Smart*® point-of-purchase program) relative to usual care (*Healthstyles-Eat Smart*® program only).

Participant Recruitment

Supermarket management did not want shoppers to be contacted before or after the intervention. Therefore, our research team was limited to in-store recruitment and data collection, and did not have the opportunity for subsequent follow-up. As mentioned above, supermarket management was also concerned that our presence might disrupt business and therefore we were not permitted to approach shoppers, but instead had to wait until they approached us. This procedural limitation made recruitment a challenge. Further, although our affiliation and purpose was

displayed on signage in the data collection and recruitment area, as well as around the store, shoppers commonly mistook us for external vendors.

When shoppers did approach our research team, they were given a brief description of the study procedures and were screened for eligibility. The study eligibility criteria provided an additional challenge for recruitment, and had to be modified shortly after the study began. The original eligibility criteria were as follows: participants had to be aged 18 years or older, shopping alone as the primary household shopper, planning to purchase at least 25 different food items, able to speak and write in English, able to shop unassisted, have transportation and own a home refrigerator. Participant accrual was very slow during the first few weeks of data collection as the majority of shoppers were not shopping alone or purchasing at least 25 different food items. Therefore, our research team agreed to modify the inclusion criteria so that participants were eligible for randomisation as long as they were the primary household shopper (shopping alone or accompanied), and planning to purchase at least 15 different food items.

To avoid disrupting the flow of consumer traffic, the in-person nutrition education session was limited to 10 minutes or less. The nutrition educator used an intervention manual to keep each presentation consistent and to appeal to shoppers who may have been visual learners. Although the time limitation eliminated the option of delivering an individualised intervention, this constraint was beneficial in that it likely mirrored the short amount of time an in-store registered dietitian or health educator might realistically have with a shopper's attention.

Results and Lessons Learned

Despite initial barriers, this pilot study was feasible. One hundred and sixty-four participants were recruited and randomised into two groups. One group received a point-of-purchase healthful shopping intervention with face-to-face nutrition education. The second group did not receive face-to-face nutrition education but were exposed to the shelf signs. All participants completed surveys that included demographic questions, and participants randomised to the intervention group answered questions related to the perceived usefulness of the shopping intervention. The intervention resulted in greater purchasing of fruit and dark-green/yellow vegetables. Among the participants who received the intervention, 69 per cent reported the program to be very or extremely useful, and 26 per cent reported it somewhat useful. Sixty-five per cent of the intervention participants reported that they would be more likely to shop in a supermarket that offered a healthful shopping program. The findings of this study and others have suggested that supermarket interventions to increase healthy food purchases are feasible (Gittelsohn et al. 2010; Huang et al. 2006; Milliron, Woolf & Appelhans 2012; Ni Mhurchu et al. 2010, 2010; Vermeer, Steenhuis & Seidell 2009). Therefore, supermarket

registered dietitians are uniquely positioned to educate the public about nutrition at the point of purchase.

Opportunities and Challenges of Supermarket Interventions

Our research team expected several challenges with the study prior to the implementation of the intervention. These included difficulty with on-site data collection (photographs of food purchases, survey administration and time), interest and willingness by shoppers to participate, and issues regarding customer privacy. While some of the challenges our research team experienced were expected, several were unforeseen. The first occurred during recruitment, as the inclusion and exclusion criteria impeded participant accrual. Our research team found few shoppers who were shopping alone and even fewer who were planning to purchase as many as 25 different food items. The research team subsequently agreed to change the inclusion and exclusion criteria. Second, although signage identifying our research team was displayed in the data collection area and in the store, shoppers often mistook our research team for external vendors. A third challenge posed the risk of reducing the efficacy of the *Healthstyles-Eat Smart*® program. The supermarket aisles were overwhelmed with shelf tags, most of which notified shoppers of 'price cuts' (items that were on sale). Because healthier food items are often more expensive (Appelhans et al. 2012), several participants anecdotally reported that the *Healthstyles-Eat Smart*® products were more costly, especially in the case of *Heart Healthy* products. Although we were unable to include coupon incentives for targeted foods as part of the intervention, future healthy shopping studies would be well-served to do so. Fourth, many shoppers were equipped with coupon books and shopping lists. Convincing a shopper to substitute a healthier product for one on their shopping list or in their coupon book proved to be a difficult task. Again, future shopping programs would be more effective if they provided coupons for targeted healthful food substitutions. A fifth challenge came, in part, as a result of the severe economic downturn that began in 2007. The supermarket with which we partnered filed for Chapter 11 bankruptcy protection just prior to the pilot testing phase of the intervention. This had two effects: 1) the corporate office was preoccupied with the financial instability of the organisation, and had little time or resources to allocate to the project; and 2) the closing of certain locations reduced the number of potential comparison stores with similar demographics to those of the intervention stores. This resulted in a modified study design and the absence of a true control group.

Recommendations for Establishing a University-Supermarket Partnership in Research

Communication and partnership between the university research teams, supermarket management and key stakeholders are essential. Strong et al. 2009 describes five key recommendations for partnerships engaged in piloting community interventions:

(1) ensure transparency regarding the research process and the intervention purpose; (2) develop realistic expectations; (3) recognise possible tensions that may arise; (4) integrate the pilot program within the structure of the host organisation; and (5) maintain reciprocal communication with program participants, the host organisation and the community during and after the pilot intervention phase. Reflecting our experience in developing a partnership, recruiting intervention participants and conducting the intervention, we adapted those recommendations to university-supermarket research collaborations.

- 1 *Ensure transparency regarding the importance of the research investigation, the objectives of the pilot study, and the process of participant recruitment and data collection.* In addition to meeting with supermarket upper management, public relations and legal counsel, the research team should conduct focus groups with the supermarket managerial staff and store employees. Such meetings may provide guidance in the design of the intervention as well as help ensure successful participant recruitment.
- 2 *Establish partner 'buy in' during study development or as early as possible.* Communicate often with key supermarket stakeholders and identify staff who may be willing to join the research team as a full partner. This recommendation can be challenging, especially if employee turnover is high or if managers and other employees are cycled between different stores. For example, during our initial study recruitment and intervention delivery, one manager and one cash register employee were supportive and enthusiastic about our research purpose and efforts. Shoppers tended to trust the supermarket personnel, so their support helped with participant recruitment and made data collection easier. However, this level of support and trust was not consistent, and employee turnover became problematic.
- 3 *Acknowledge the tensions that may arise between the challenges of running a business by supermarket management/staff and the purpose of the pilot intervention.* Discuss in advance how the partnership will address these tensions. Clear communication is critical, especially during economic hardship.
- 4 *Incorporate the pilot intervention within the structure of the host supermarket if possible.* Fortunately, we were able to test a pre-existing healthy shopping program. The results provided insight to the sustainability and effectiveness of providing such programs, as well as to future direction and possible enhancement.
- 5 *Carefully select a method of measurement for food purchasing patterns that can be implemented with minimal disruptions to store operations.* We found digital photography, field notes and duplicate receipts to be efficient and well accepted, but other

options may also be well suited to different study designs and store environments.

CONCLUDING REMARKS

University-supermarket partnerships are valuable and worth the time and effort it takes to build them. By collaborating with the supermarket and testing the healthy shopping program, we were able to: 1) provide additional evidence that supermarket healthy shopping programs are feasible and can impact food purchases; and 2) provide support for implementing the program in all of the specific supermarket chains in the state and placing program volunteers in each store, as envisioned by the corporate registered dietitian.

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REFERENCES

- Appelhans, B, Milliron, B-J, Woolf, K, Johnson, T, Pagoto, S, Schneider, K, Whited, M & Ventrelle, J 2012, 'Socioeconomic status, energy cost, and the nutrient content of supermarket food purchases', *American Journal of Preventive Medicine*, vol. 42, no. 4, pp. 398–402.
- Black, J, Macinko, J, Dixon, L & Fryer G Jr, 2010, 'Neighborhoods and obesity in New York City', *Health and Place*, vol. 16, no. 3, pp. 489–99.
- Blischok, T 2010, 'Childhood obesity: America in crisis', Food Marketing Institute, Symphony IRI, Chicago, IL, viewed 17 April 2012, www.fmi.org/industry-topics/health-wellness/obesity.
- Ernst, N, Wu, M, Frommer, P, Katz, E, Matthews, O, Moskowitz, J, Pinsky, J, Pohl, S, Schreiber, G, Sondik, E, Tenney, J, Wilbur, C & Zifferblatt, S 1986, 'Nutrition education at the point of purchase: The "Foods for Health" project evaluated', *Preventive Medicine*, vol. 15, issue 1, pp. 60–73.

Flegal, K, Carroll, M, Kit, B & Ogden, C 2012, 'Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999–2010', *Journal of the American Medical Association*, vol. 307, no. 5, pp. 491–97.

Food Marketing Institute 2010, 'Industry overview 2010: Supermarket facts', viewed 8 March 2012, www.fmi.org/research-resources/supermarket-facts.

Food Marketing Institute 2012, 'Health and wellness', viewed 8 March 2012, www.fmi.org/health-wellness/.

Gittelsohn, J, Vijayadeva, V, Davison, N, Ramirez, V, Cheung, L, Murphy, S & Novotny, R 2010, 'A food store intervention trial improves caregiver psychosocial factors and children's dietary intake in Hawaii', *Obesity*, vol. 18, suppl. 1, pp. 84–90s.

Guthrie, J, Lin, B & Frazao, E 2002, 'Role of food prepared away from home in the American diet, 1977–78 versus 1994–96: Changes and consequences', *Journal of Nutrition Education and Behavior*, vol. 34, no. 3, pp. 140–50.

Hill, J & Peters, J 1998, 'Environmental contributions to the obesity epidemic', *Science*, vol. 280, pp. 1371–74.

Huang, A, Barzi, F, Huxley, R, Denyer, G, Rohrlach, B, Jayne, K & Neal, B 2006, 'The effects on saturated fat purchases of providing internet shoppers with purchase-specific dietary advice: A randomized trial', *PLoS Clinical Trials*, vol. 1, no. 5, p. 22e.

Kristal, A, Goldenhar, L, Muldoon, J & Morton, R 1997, 'Evaluation of a supermarket intervention to increase consumption of fruits and vegetables', *American Journal of Health Promotion*, vol. 11, pp. 422–25.

Milliron, B, Woolf, K & Appelhans, B 2012, 'A point-of-purchase intervention featuring in-person supermarket education affects healthful food purchases', *Journal of Nutrition Education and Behavior*, vol. 44, no. 3, pp. 225–32.

Morland, K & Evenson, K 2009, 'Obesity prevalence and the local food environment', *Health and Place*, vol. 15, no. 2, pp. 491–95.

Ni Mhurchu, C, Blakely, T, Jiang, Y, Eyles, H & Rodgers, A 2010, 'Effects of price discounts and tailored nutrition education on supermarket purchases: A randomized controlled trial', *American Journal of Clinical Nutrition*, vol. 91, pp. 736–47.

Nielsen, S, Siega-Riz, A & Popkin, B 2002, 'Trends in food locations and sources among adolescents and young adults', *Preventive Medicine*, vol. 35, no. 2, pp. 107–13.

Ogden, C, Carroll, M, Kit, B & Flegal, K 2012, 'Prevalence of obesity and trends in body mass index among US children and adolescents, 1999–2010', *Journal of the American Medical Association*, vol. 307, no. 5, pp. 483–90.

Paine-Andrews, A, Francisco, V, Fawcett, S, Johnston, J & Coen, S 1996, 'Health marketing in the supermarket: Using prompting, product sampling, and price reduction to increase customer purchases of lower-fat items', *Health Mark Q*, vol. 14, pp. 85–99.

Rodgers, A, Kessler, L, Portnoy, B, Potosky, A, Patterson, B, Tenney, J, Thompson, F, Krebs-Smith, S, Breen, N & Mathews, O 1994, "'Eat for Health": A supermarket intervention for nutrition and cancer risk reduction', *American Journal of Public Health*, vol. 84, no. 1, pp. 72–76.

Sallis, J & Glanz, K 2006, 'The role of the built environment in physical activity, eating, and obesity in childhood', *Future Child*, vol. 16, pp. 89–108.

Sallis, J & Glanz, K 2009, 'Physical activity and food environments: Solutions to the obesity epidemic', *The Millbank Quarterly*, vol. 87, pp. 123–54.

Strong, L, Israel, B, Schulz A, Reyes, A, Rowe, Z, Weir, S & Poe, C 2009, 'Piloting interventions within a community-based participatory research framework: Lessons learned from the Healthy Environments Partnership', *Progress in Community Health Partnerships: Research, Education, and Action*, vol. 3, no. 4, pp. 327–34.

Vermeer, W, Steenhuis, I & Seidell, J 2009, 'From the point-of-purchase perspective: A qualitative study of the feasibility of interventions aimed at portion size', *Health Policy*, vol. 90, pp. 73–80.

Yoo, S, Baranowski, T, Missaghian, M, Baranowski, J, Cullen, K, Fisher, J, Watson, K, Zakeri, F & Nicklas, T 2006, 'Food-purchasing patterns for home: A grocery store intercept survey', *Public Health Nutrition*, vol. 9, no. 3, pp. 384–93.