Title

Mobilizing Young People in Community Efforts to Improve the Food Environment: Corner Store Conversions in East Los Angeles

Journal

Public Health Reports, 130(4)

ISSN

0033-3549

Authors

Sharif, Mienah Z
Garza, Jeremiah R
Langellier, Brent A
et al.

Publication Date

2015-07-01

DOI

10.1177/003335491513000421

Peer reviewed

MOBILIZING YOUNG PEOPLE IN COMMUNITY EFFORTS TO IMPROVE THE FOOD ENVIRONMENT: CORNER STORE CONVERSIONS IN EAST LOS ANGELES

Mienah Z. Sharif, MPH
Jeremiah R. Garza, MA, MPH
Brent A. Langellier, MA, PhD
Alice A. Kuo, MD, PhD
Deborah C. Glik, ScD
Michael L. Prelip, DPA
Alexander N. Ortega, PhD

Latino young people are significantly more likely to be obese than their non-Latino white peers.[1–3] Higher obesity rates place Latino young people—one of the largest, fastest-growing ethnic groups in the United States—at a heightened risk for developing a range of chronic diseases, including obesity, cardiovascular disease (CVD), and type 2 diabetes.[4–8] Moreover, Latinos are far from meeting the recommended daily intake of fruit and vegetables,[9–12] which is a critical public health concern considering that maintaining a healthful diet, including fruit and vegetables, is a key strategy for preventing chronic disease.[13–21]

The food environment influences dietary behavior. However, social and economic factors lead to stark variations in the composition and quality of food among communities that help explain disparities in dietary practices and health outcomes.[22–28] Specifically, low-income communities of color have less access to fresh, affordable fruit and vegetables than more affluent communities.[25,26,29–31] Furthermore, low-income, racial/ethnic minority families often find it easier to purchase energy-dense foods (characterized as high in fat, calories, and sugar) than healthier options, such as fresh fruit and vegetables.[25,29,32–34] One such example is East Los Angeles (East LA), an urban, predominantly Mexican-American community that has limited access to affordable, healthful food, but an abundance of fast-food restaurants and other sources of unhealthful food.[35,36] The food environment is one factor that helps explain why East LA residents experience higher rates of heart disease, diabetes, hypertension, and stroke than residents of more affluent LA neighborhoods.[37]

Converting corner stores to improve access to affordable, healthful foods is one potential strategy to improve the food environment.[28,34,38–44] There is no one definition, or approach, for conducting corner store conversions. However, common strategies include improving the store's façade and installing refrigeration units to store the newly available fresh produce.[44] The University of California, Los Angeles (UCLA) Center for Population Health and Health Disparities (CPHHD) implemented a community-engaged corner store conversion project called Proyecto Mercado-FRESCO (Fresh Market Project) in East LA and the neighboring community of Boyle Heights. This intervention converted four locally owned corner stores with the goal of increasing access to healthful food and reducing CVD risk. The CPHHD approach emphasized collaboration among community residents and organizations, public health agencies, local public schools, and store owners.[44–47] The process included moving less healthful food items (i.e., chips, soda, and candy) to the back of the store, installing a fresh produce section at the front, improving the interior and exterior store façade, replacing alcohol and tobacco advertisements with healthful food messages, and providing business skills training to store owners.

A major supplement to the conversion was a youth-driven campaign of community nutrition education and social marketing to promote the converted stores and increase the purchase of fruit and vegetables.[45–47] An elective course was implemented at two public high schools, one in East LA and one in Boyle Heights, to build the capacity of local students to lead the community social marketing campaign. Students received classroom and field training in nutrition, food justice, media production, and social marketing. The campaign consisted of the following activities: performances at schools, community centers, and parks; short videos on buses; the design and dissemination of posters at bus shelters and marketing materials in neighborhoods surrounding converted stores; and cooking demonstrations at the stores (Photos 1 and 2). In addition to leading the social marketing campaign, young people were actively involved in the stores' physical transformation.

The importance of youth perspectives in implementing policy advocacy, social marketing, and health projects has been well established in tobacco and substance use prevention.[48–54] While some reports document the engagement of low-income, minority young people in advocating for improvements in their access to healthful food, few reports focus on corner store interventions, and none use qualitative

Photo 1. Students transforming the exterior of a local corner store in East Los Angeles, California, before (above) and after (below) conversion. Photo by Public Matters, LLC

data to examine the perspectives of Latino young people.[55–59] We sought to inform youth engagement activities related to corner store interventions through qualitative research that describes young people's perceptions of their food environment, perceptions and involvement with the market conversion project, and leadership development. This research may prove helpful to other public health interventionists seeking to mobilize young people in corner store conversions and other community-engaged efforts to improve the food environment.

METHODS

Participants

Three focus groups with 30 participants total (54% of the total number of students) were conducted with teens aged 16–17 years enrolled in an elective course, "Market Makeovers and Social Marketing," at two public high schools. Signed assent and consent forms were obtained from the participants and their parents. Participants were recruited from June 2011 to December 2012 during after-school informational sessions.

Procedures

Focus group interviews lasted 60 minutes and were conducted in English by trained moderators. Participants completed a one-page demographic questionnaire. The discussions were audiotaped and field notes were taken. A semistructured focus group format with open-ended questions assessed the teens' perceptions of their food environment, their role and view of the market conversion, leadership development, and recommendations for sustaining the intervention and engaging young people. Thematic saturation was reached by the third focus group.

Data analysis

Audiotapes were transcribed verbatim and field notes were summarized and analyzed. Research staff verified transcriptions by listening to the tapes while reading the transcripts and identified and coded themes through content analyses. Data were analyzed by integrating both inductive (i.e., interviewee-generated categories) and deductive (i.e., interviewer-generated categories) analyses.[60–62] Related codes were then linked to capture broad views of the participants. A second reviewer independently identified themes to control potential bias. There was high concordance among the reviewers.

RESULTS

Several themes emerged focusing on young people's perceptions of their food environment, community engagement of young people, capacity building, and recommendations for sustaining the market conversion work (Table 1).

Participant demographic characteristics

Twenty-three participants were female high school seniors, 23 participants were born in the United States, the mean age of participants was 16.9 years, and participants spent a mean of 14.1 years of their life in the United States. The majority of participants' parents (n=14) had not completed high school. Eight participants reported that nutrition and healthful eating were often discussed at home, and 20 participants reported living with someone who had been told by a doctor they had diabetes (Table 2).

Perspectives of the community food environment and the relationship between socioeconomic status and access to healthful food

Students regarded their community food environment as critical to healthful eating. All students clearly stated that there is unequal access to healthful food in LA County and commented on the variation in food

Photo 2. Two of 45 bilingual (Spanish and English) bus shelter posters, designed by high school students, installed throughout East Los Angeles and Boyle Heights to promote healthy eating. Photo by Marlene Franco

Left: Boyle Heights pet lovers choose fruit and vegetables. Right: Boyle Heights cyclists choose fruit and vegetables.

environments across neighborhoods. For example, they explained that some neighborhoods are less conducive to healthful eating because of limited access to affordable, healthful food, yet easy access to fast food and alcohol. They indicated that other neighborhoods have more health-promoting factors, such as available, high-quality, affordable produce at grocery stores (e.g., Whole Foods and Trader Joe's). They added that shopping for healthier grocery items is challenging in East LA, as many residents lack transportation and find it difficult to carry items on crowded buses along multiple routes. Moreover, students recognized that East LA has higher rates of CVD, diabetes, obesity, and high cholesterol than more affluent neighborhoods.

Students were asked to describe their community food environment in general. However, students themselves identified and articulated the strong role of socioeconomic status in this matter. Several participants reasoned that differences in race/ethnicity and socioeconomic factors underlie inequities in access to healthful food. Many students argued that healthful food is more available in affluent neighborhoods, where residents are perceived to have more economic and political clout to influence their environment.

The home environment: family norms and dietary behavior

Although the home environment was not explicitly included in the focus group questions, the students frequently raised this topic as influential in their dietary practices. Students emphasized the role of family in shaping dietary behavior and explained that healthier eating is easier if the entire family participates. Some students added that they were challenged by their parents' preferences for large portion sizes and Mexican dishes cooked with lard. Others recognized that their families' tastes and preferences were reflective of the less healthful fare that is readily available at fast-food restaurants and liquor stores in their community. In addition, students inadvertently discussed dietary

Table 1. Focus group themes and comments about health disparities and the community food environment among Latino teens (*n*=30) participating in a corner store makeover project in East Los Angeles and Boyle Heights, California, 2011–2012

Prominent themes	*Example comments*
Young people's perceptions of their community food environment (deductive)	
Limited access to high-quality, healthy foods	Here in East LA, the food has passed through a lot of other stores. Nobody else wants it, it's really bad quality, and it's really expensive.
Easy access to fast food	Even if you put in as many healthy options as you can, we are still going to be surrounded by fast food. Like, you still see a McDonald's every two blocks.
Diet-related chronic disease linked to community food environment	Right now you can see the percentages of kids with obesity going up. So, if we try to make more liquor stores healthy, we could have more little kids going to the store and instead of getting chips, they will go for the apples, the bananas.
Relationship between socioeconomic status and access to healthy food (inductive)	
Food access shaped by socioeconomic status	Trader Joe's puts stores where there is a big graduation rate from college because they know people there have enough money to buy their groceries there. Here in East LA, the graduation level is not as high, and our parents don't make that much money.
Healthy food costs more than junk food	Fast food is cheaper than fresh fruit and vegetables. So, a lot of the time people resort to fast food rather than eating fresh fruit and vegetables because they don't have the money for fresh produce.
Limited transportation impedes healthy food purchases	Some people don't have transportation, so they buy the easy stuff rather than the vegetables, because they are heavier to transport.
The home environment: family norms and dietary behavior (inductive)	
Cultural practices promote healthy eating	My mom [from Mexico] has brought that kind of teaching to us. When I go to the kitchen, the first thing I see is a bowl with fruit, bananas, sandía, watermelon, and oranges. And the first thing I get is a banana because it's easy to peel. Sometimes when I am bored and have nothing to do, I cut the watermelon and put it on the table. And when I come back, it's already gone. Making it easier for people makes them eat healthier.
Family involvement makes healthy eating easier	When you eat healthy and you're alone, you don't want to feel lonely, but when you eat with the whole family, everyone has to eat this way, and it feels good.
Time constraints are associated with unhealthy eating	We are in a community where people need to work so many hours so they can provide for their family. Once they get home, there's no time to make a healthy meal that covers every food group. Sometimes it's easier for them to go to a drive-through, come home, eat, rest, and get ready for the routine again tomorrow.
Perceptions of corner stores (deductive)	
Expensive and used for emergency purposes only	I live next to a corner store, and for emergencies we go to the store to see if they have something, and then we end up not buying it because it's too expensive.
Well stocked with junk food but limited in their healthy foods selection	East LA has a lot of liquor stores and they don't really sell healthy food; they only really sell chips and junk food.
Limited business interest to sell healthy foods due to low community demand	People won't buy fresh fruit and vegetables, so corner stores won't care enough to put it in the stores. They figure they'd get more money by selling more fatty food, food that is more hazardous to people, because it will make more money for them.

continued on p. 410

acculturation, as some students asserted that relatives who had been in the United States for a shorter period of time placed more emphasis on eating fruit and vegetables than did family members who had been in the United States longer. Participants perceived financial and time constraints as factors influencing their families' diets. Thus, the students explained that as their families struggled financially, they tended to consume more quick, low-cost, unhealthy foods.

Engaging young people in market conversion work

Students initially became involved in the corner store project because they thought it would be fun to learn how to use cameras and make videos. Gradually, however, video production became a catalyst for the students to become invested in improving their food environment. The process of making videos helped students realize the reality of food justice issues in their families and neighborhoods. Over time, students

Table 1 (continued). Focus group themes about health disparities and the community food environment among Latino teens (*n*=30) participating in a corner store makeover project in East Los Angeles and Boyle Heights, California, 2011–2012

Prominent themes	*Example comments*
Youth engagement in market conversion work (deductive)	
Focus on fun, educational opportunities outside the classroom	While creating different videos, it was a moment of realization that this is a cool project. At the beginning, it was just fun to go out and play with cameras. I actually got to go in my community and do something about it instead of just learning about it but not doing anything about it.
Identify young people who want to take charge and improve their community	What really got me interested was the fact that it was rooted in the community, and I could relate to that because it wasn't just another store coming in and not knowing the community. The intervention corner stores had been here for a while, and it just made me want to help them.
Involve young people in decision-making	I like to be involved in projects and I like for people to make me feel like I am important to the project and not just one of the workers.
Benefits of participating: building capacity in young people (deductive)	
Experience impacted personal and family dietary behavior	I always took home something that I learned. I don't let my mom buy junk food. I tell her, "We don't want it," so she doesn't buy it. It changed my life because I am thinking long term, and it changed my mom and my family, too. I get to learn things in the classroom and then I get to go home and tell all my friends and my family about it. Then when I have a chance to do public speaking, I use the information that we learned in class to focus on issues in the community.
Camaraderie	One of the things I enjoyed the most is that I got to meet a lot of new people. A lot of us might have seen or known each other from middle school, but we never talked. Because of the project, we started hanging out and we got really close.
Leadership and public-speaking skills	I learned how to speak in front of crowds, I've gained leadership skills, and I've learned how to be more organized from planning events. I learned that we can actually make a change in the community if we work together.
Built self-esteem and self-efficacy	There was this girl in our class who, whenever she gave a speech, sounded like she was about to cry. But now she can talk in front of people and not feel nervous. I see the benefits of participating for myself. What this class, or this project, has to offer is knowing that I am always going to have this information. And I know one day I am going to be a grown-up and I am going to have control over my own little family and our own little world. And one person in that family is going to have something to hear if I see them with a regular burger or something bad in their hand to eat.
Sparked interest in public health	Public health is something I really was not aware of before. I just assumed that I would be more involved in the field of medicine, as a doctor or something like that. So, I guess it really expanded my perception of that, and now I am considering public health for college.
Youth perspective on sustaining store changes and improving healthy food access (deductive)	
Maintain store changes	After the makeover, sometimes I would go to a made-over store and see rotten fruit there, and that totally kills the purpose of fresh, good-quality fruit and vegetables.
Sell fresh produce at competitive prices	I know the way community residents think is the way my mom thinks. And I think that I was a little worried that the made-over corner stores would not be able to sell the fresh fruit and vegetables because of the prices, and then the people would say, "Well, the Superior [larger food store] isn't that far, so we might as well go down the hill to it."
Promote converted stores widely	My mom sees the made-over stores, but if I didn't tell her she wouldn't know about them and she wouldn't buy the fruit and vegetables there. We have to raise awareness of converted stores to the community so people will keep going.
Garner support from adults	It would be nice for adults to come and actually help because we kids can't do that much without adults with us. I know a lot of adults where I live want change, too. They are sick and tired of seeing liquor stores, and when I told them about the made-over stores, they all started going.

LA = Los Angeles

developed a personal connection to the topic that cultivated a commitment to making changes in the community. The students said that their potential to make long-term changes in their community is what helped sustain their involvement in the project.

They felt ownership and pride in knowing their views contributed to the marketing campaign. Thus, it was a challenge for some students when they perceived that they were not included in some decision-making processes. Moreover, some students were confused about

Table 2. Demographics of Latino teens (*n*=30) participating in a corner store makeover project in East Los Angeles and Boyle Heights, California, 2011–2012

Characteristic	N	*Percent or mean*
Gender		
Male	7	23
Female	23	77
Mean age (in years): range (SD)	30	16.9: 16–19 (0.7)
Highest grade completed		
10th	9	30
11th	21	70
Latino ethnicity	30	100
Country of birth		
Mexico	7	23
United States	23	77
Number of years in the United States: range (SD)	30	14.1: 1.5–18.0 (5.1)
Number of people in household: range (SD)	30	4.7: 3–7 (1.3)
Parents' highest level of education		
≤8th grade	5	17
<High school	9	30
≥12th grade or GED	7	23
Some college	6	20
Bachelor's degree	3	10
Healthy eating discussed in household		
Never	4	13
Sometimes	18	60
Often	8	27
Health professional told anyone in household has diabetes		
Yes	20	67
No	9	30
Don't know	1	3

SD = standard deviation

GED = general educational development

how their input was incorporated into the final editing process of marketing materials. In response, participants suggested that young people's involvement could be enhanced by directly involving them in key decisions. While they acknowledged the need for adult guidance on technical matters related to social marketing, students emphasized the importance of integrating their own ideas despite their lack of professional training.

Sustaining store changes and improving healthful food access

Students were not entirely convinced that increasing access to healthful food at corner stores would improve healthful eating in East LA. This finding was largely due to the fact that corner stores are commonly perceived as expensive stores full of junk food and alcohol that are used for emergencies only. Moreover, students expressed concern about the maintenance of the store changes, particularly regarding the pricing, quality, and display of fresh produce. However, students acknowledged that converted stores do indeed have the potential to make positive changes, especially at stores in convenient locations that are locally owned and run by friendly, familiar faces.

From the students' perspective, low levels of awareness about the corner store conversions and the newly available produce at the stores among community residents was compromising patronage at the recently converted stores and thereby, the conversions' sustainability. Thus, students explained that their concern about low levels of awareness of the conversions and how it could be detrimental to the adoption of healthful eating habits and the project's sustainability largely motivated their commitment to boosting social marketing efforts to promote the stores to their families and their community.

Benefits of participating: youth capacity building

Students described how the project gave them an opportunity to develop leadership, public-speaking, and organizational skills. These opportunities increased their confidence in communicating nutrition knowledge to their peers, families, and the community. As a result of their participation, the students explained how the project also improved nutrition knowledge and dietary behaviors within their families. Several students attested that their training influenced the healthfulness of their family's grocery shopping, cooking, and eating practices. Students expressed a desire to sustain these healthy behavior changes throughout adulthood and when they became parents themselves. Building camaraderie and new friendships was a common unanticipated benefit students described. As several participants explained, they had attended similar schools for years but never spoken to each other, yet they became close friends as a result of the project.

The project also influenced students' educational and career plans. For some students, it reinforced preexisting career goals in medicine or public relations; for others, the project introduced them to new fields such as public health, nursing, and graphic design. The project provided students with mentorship and technical assistance on college applications from UCLA graduate students. Due to the practical and life skills garnered through project participation, many graduating seniors enrolled in college, becoming the first in their family to seek education beyond high school. In addition, some students have been hired as field

interviewers for the project's ongoing data collection and/or mentors for younger students.

DISCUSSION

The two primary purposes of this study were to (*1*) ascertain young people's perceptions of their food environment and (*2*) describe and examine the students' experience with the corner store conversion to inform future campaigns to improve the community food environments.

One strength of this study was the consistency of our findings with the existing literature. As reflected in prior studies, the students recognized that dietary habits are shaped by social and environmental factors, including household norms and behaviors, transportation, availability of healthful food, convenience, and cost.[28,63–66] A common theme in the focus groups was the lack of access to healthful food coupled with an abundance of affordable, unhealthy food.[57] Students also recognized that neighborhoods are segregated by race/ethnicity and socioeconomic factors, and this segregation creates disparities in access to higher-quality, more healthful foods. Consistent with previous focus group studies, our participants understood the role these environmental factors play in negatively impacting their community's dietary behaviors and health outcomes.[65,66]

Food availability, convenience, cost, and time barriers were cited as factors influencing eating habits at home. Participants reported that work schedules often led parents to choose less healthful family meals from fast-food restaurants rather than prepare more healthful meals at home.[67,68] They were also aware of the impact of family norms and behaviors on healthful eating. For example, participants suggested that it was more difficult to eat healthfully among family members who had been in the United States for a long time and when the family members were not invested in improving their dietary habits.[68,69] Despite these barriers, participants credited the project with enhancing their ability to effectively communicate and lead positive changes in dietary practices at home. Some students said that their own healthy role modeling resulted in their entire family becoming invested in more healthful eating habits.

Participants cited multiple benefits of the project's youth engagement activities. The opportunity to learn video production and work with cameras was particularly appealing. This method of engaging young people as change agents aligns with other youth-friendly participatory research methods such as photovoice and community mapping.[70–72] Youth-engaged media work served to increase awareness of health disparities and introduce students to community assessment and action. In the process of identifying community health issues and interpreting their findings, students became invested in realizing positive changes in their community. Their sense of ownership was expressed by their desire to maintain the changes at converted stores. Participants also described how the project helped them develop leadership and public-speaking skills that resulted in increased self-efficacy and confidence in advocating for changes within their families and community. These outcomes are similar to what have been identified by other youth-engaged participatory research efforts,[57,63,73] thus reinforcing the unique opportunities a youth-focused approach to research has for building capacity and mobilizing community members on health issues.

A unique characteristic of the CPHHD initiative was an emphasis on building local capacity and providing training and professional opportunities. The project's youth engagement component was designed not only to increase the students' knowledge of public health issues, but also to help them develop the skills necessary to continue being health advocates and to help sustain the project's efforts beyond the elective course. For example, students were not only motivated to improve their own eating habits, but were also provided training on how to initiate behavior change among their peers and relatives. The project also carried out various efforts to help sustain youth engagement upon their graduation, including internships and paid opportunities that helped continue and expand the marketing and community nutrition education efforts. Developing strong partnerships with local high schools and community-based organizations facilitated these efforts.

Limitations

This study was subject to two limitations. First, the generalizability of these results was limited to our convenience sample of primarily female high school students living in a low-income, Mexican-American community. Second, given that the study objective was to ascertain the perceptions of the young people involved in a corner store conversion project, this study did not include an assessment of community-level behavioral change as a result of the youth-engagement component. This limitation identified a current gap in the literature that future studies can help address.

CONCLUSIONS

This study adds to the growing body of literature on how young people perceive the role of social and

physical environmental factors in community health, as well as how they can be directly engaged in addressing them. This study provides young people's perspectives on how to effectively engage and sustain their involvement in corner store interventions to improve the food environment and facilitate positive changes in dietary behavior. These findings might prompt future funding and policy initiatives to develop youth-engaged components for community-level efforts, particularly efforts that focus on building local capacity and providing professional development opportunities. Such efforts not only help sustain the skills that young people develop, but can also facilitate the projects' sustainability.

This study was supported by grant #P50HL105188 and grant #R25HL108854 from the National Heart, Lung, and Blood Institute at the National Institutes of Health. The project described was partially supported by Award #5T32AG033533 and R24H0041022 from the National Institute on Aging. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Aging or the National Institutes of Health. The Institutional Review Board of the University of California, Los Angeles (UCLA) approved this study.

Mienah Sharif is a Research Assistant at the UCLA Center for Population Health and Health Disparities (CPHHD) in Los Angeles, California, and a Doctor of Philosophy Student in the Department of Community Health Sciences at the UCLA Fielding School of Public Health in Los Angeles. Jeremiah Garza is a Doctor of Public Health Candidate in the Department of Health Policy and Management at the UCLA Fielding School of Public Health. Brent Langellier is an Assistant Professor in the Division of Health Promotion Sciences at the University of Arizona Mel & Enid Zuckerman College of Public Health in Tucson, Arizona. Alice Kuo is a Co-Investigator at the UCLA CPHHD, an Associate Professor in the Department of Health Policy and Management at the UCLA Fielding School of Public Health, and an Associate Professor in the Department of Pediatrics at the UCLA David Geffen School of Medicine in Los Angeles. Deborah Glik is a Project Co-Leader at the UCLA CPHHD and a Professor in the Department of Community Health Sciences at the UCLA Fielding School of Public Health. Michael Prelip is a Project Co-Leader at the UCLA CPHHD and a Professor in the Department of Community Health Sciences at the UCLA Fielding School of Public Health. Alexander Ortega is Director of the UCLA CPHHD and a Professor in the Department of Health Policy and Management at the UCLA Fielding School of Public Health.

Address correspondence to: Mienah Z. Sharif, MPH, University of California, Los Angeles Center for Population Health and Health Disparities, Fielding School of Public Health, Department of Community Health Sciences, PO Box 951772, Los Angeles, CA 90095-1772; tel. 310-909-4326; e-mail <mienah@gmail.com>.

REFERENCES

1. Flegal KM, Ogden CL, Carroll MD. Prevalence and trends in overweight in Mexican-American adults and children. Nutr Rev 2004;62(7 Pt 2):S144-8.
2. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011–2012. JAMA 2014;311:806-14.
3. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of obesity and trends in body mass index among US children and adolescents, 1999–2010. JAMA 2012;307:483-90.
4. Centers for Disease Control and Prevention (US). Adolescent and school health: childhood obesity facts [cited 2014 Mar 10]. Available from: URL: http://www.cdc.gov/healthyyouth/obesity/facts.htm
5. Centers for Disease Control and Prevention (US). Diabetes in youth [cited 2014 Mar 10]. Available from: URL: http://www.cdc.gov/diabetes/projects/diab_children.htm
6. Freedman DS, Mei Z, Srinivasan SR, Berenson GS, Dietz WH. Cardiovascular risk factors and excess adiposity among overweight children and adolescents: the Bogalusa Heart Study. J Pediatr 2007;150:12-7.e2.
7. Li C, Ford ES, Zhao G, Mokdad AH. Prevalence of pre-diabetes and its association with clustering of cardiometabolic risk factors and hyperinsulinemia among U.S. adolescents: National Health and Nutrition Examination Survey 2005–2006. Diabetes Care 2009;32:342-7.
8. BeLue R, Francis LA, Colaco B. Mental health problems and overweight in a nationally representative sample of adolescents: effects of race and ethnicity. Pediatrics 2009;123:697-702.
9. Department of Health and Human Services (US), Office of Disease Prevention and Health Promotion. Dietary guidelines for Americans [cited 2013 Nov 9]. Available from: URL: http://www.health.gov/dietaryguidelines
10. Grimm KA, Blanck HM. Survey language preference as a predictor of meeting fruit and vegetable objectives among Hispanic adults in the United States, Behavioral Risk Factor Surveillance System, 2009. Prev Chronic Dis 2011;8:A133.
11. Beech BM, Rice R, Myers L, Johnson C, Nicklas TA. Knowledge, attitudes, and practices related to fruit and vegetable consumption of high school students. J Adolesc Health 1999;24:244-50.
12. Li R, Serdula M, Bland S, Mokdad A, Bowman B, Nelson D. Trends in fruit and vegetable consumption among adults in 16 US states: Behavioral Risk Factor Surveillance System, 1990–1996. Am J Public Health 2000;90:777-81.
13. Flock MR, Kris-Etherton PM. Dietary guidelines for Americans 2010: implications for cardiovascular disease. Curr Atheroscler Rep 2011;13:499-507.
14. Appel LJ, Sacks FM, Carey VJ, Obarzanek E, Swain JF, Miller ER 3rd, et al. Effects of protein, monounsaturated fat, and carbohydrate intake on blood pressure and serum lipids: results of the OmniHeart randomized trial. JAMA 2005;294:2455-64.
15. Appel LJ, Moore TJ, Obarzanek E, Vollmer WM, Svetkey LP, Sacks FM, et al. A clinical trial of the effects of dietary patterns on blood pressure. DASH Collaborative Research Group. N Engl J Med 1997;336:1117-24.
16. Obarzanek E, Sacks FM, Vollmer WM, Bray GA, Miller ER 3rd, Lin PH, et al. Effects on blood lipids of a blood pressure-lowering diet: the Dietary Approaches to Stop Hypertension (DASH) Trial. Am J Clin Nutr 2001;74:80-9.
17. Bazzano LA, Serdula MK, Liu S. Dietary intake of fruits and vegetables and risk of cardiovascular disease. Curr Atheroscler Rep 2003;5:492-9.
18. Hung HC, Joshipura KJ, Jiang R, Hu FB, Hunter D, Smith-Warner SA, et al. Fruit and vegetable intake and risk of major chronic disease. J Natl Cancer Inst 2004;96:1577-84.
19. Dauchet L, Amouyel P, Dallongeville J. Fruits, vegetables and coronary heart disease. Nat Rev Cardiol 2009;6:599-608.
20. Dauchet L, Amouyel P, Dallongeville J. Fruit and vegetable consumption and risk of stroke: a meta-analysis of cohort studies. Neurology 2005;65:1193-7.
21. Dauchet L, Amouyel P, Hercberg S, Dallongeville J. Fruit and vegetable consumption and risk of coronary heart disease: a meta-analysis of cohort studies. J Nutr 2006;136:2588-93.
22. Laraia BA, Siega-Riz AM, Kaufman JS, Jones SJ. Proximity of supermarkets is positively associated with diet quality index for pregnancy. Prev Med 2004;39:869-75.
23. Moore LV, Diez Roux AV, Nettleton JA, Jacobs DR Jr. Associations of the local food environment with diet quality—a comparison of assessments based on surveys and geographic information systems: the multi-ethnic study of atherosclerosis. Am J Epidemiol 2008;167:917-24.

24. Rose D, Richards R. Food store access and household fruit and vegetable use among participants in the US Food Stamp Program. Public Health Nutr 2004;7:1081-8.
25. Morland K, Wing S, Diez Roux A. The contextual effect of the local food environment on residents' diets: the Atherosclerosis Risk in Communities Study. Am J Public Health 2002;92:1761-7.
26. Zenk SN, Schulz AJ, Hollis-Neely T, Campbell RT, Holmes N, Watkins G, et al. Fruit and vegetable intake in African Americans, income, and store characteristics. Am J Prev Med 2005;29:1-9.
27. Cheadle A, Psaty BM, Curry S, Wagner E, Diehr P, Koepsell T, et al. Community-level comparisons between the grocery store environment and individual dietary practices. Prev Med 1991;20:250-61.
28. Walker RE, Block J, Kawachi I. Do residents of food deserts express different food buying preferences compared to residents of food oases? A mixed-methods analysis. Int J Behav Nutr Phys Act 2012;9:41.
29. Block JP, Scribner RA, DeSalvo KB. Fast food, race/ethnicity, and income: a geographic analysis. Am J Prev Med 2004;27:211-7.
30. Larson NI, Story MT, Nelson MC. Neighborhood environments: disparities in access to healthy foods in the U.S. Am J Prev Med 2009;36:74-81.
31. Franco M, Diez Roux AV, Glass TA, Caballero B, Brancati FL. Neighborhood characteristics and availability of healthy foods in Baltimore. Am J Prev Med 2008;35:561-7.
32. Boone-Heinonen J, Gordon-Larsen P, Kiefe CI, Shikany JM, Lewis CE, Popkin BM. Fast food restaurants and food stores: longitudinal associations with diet in young to middle-aged adults: the CARDIA study. Arch Intern Med 2011;171:1162-70.
33. Mari Gallagher Research & Consulting Group. Examining the impact of food deserts on public health in Chicago. Chicago: Mari Gallagher Research & Consulting Group; 2006. Also available from: URL: http://www.marigallagher.com/site_media/dynamic/project_files/1_ChicagoFoodDesertReport-Full_.pdf [cited 2013 Nov 9].
34. Cannuscio CC, Tappe K, Hillier A, Buttenheim A, Karpyn A, Glanz K. Urban food environments and residents' shopping behaviors. Am J Prev Med 2013;45:606-14.
35. Morland K, Wing S, Diez Roux A, Poole C. Neighborhood characteristics associated with the location of food stores and food service places. Am J Prev Med 2002;22:23-9.
36. California Center for Public Health Advocacy. Searching for healthy food: the food landscape in California cities and counties. Davis (CA): California Center for Public Health Advocacy; 2007. Also available from: URL: http://www.publichealthadvocacy.org/RFEI/policybrief_final.pdf [cited 2013 Nov 9].
37. Los Angeles County Department of Public Health. Key indicators of health. 2013 [cited 2013 Nov 9]. Available from: URL: http://publichealth.lacounty.gov/docs/keyindicators.pdf
38. Story M, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating environments: policy and environmental approaches. Annu Rev Public Health 2008;29:253-72.
39. Glanz K, Yaroch AL. Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change. Prev Med 2004;39 Suppl 2:S75-80.
40. Bolen E, Hecht K. Neighborhood groceries: new access to healthy food in low-income communities. 2003 [cited 2013 Nov 10]. Available from: URL: http://www.healthycornerstores.org/wp-content/uploads/resources/CFPAreport-neighborhoodgroceries.pdf
41. Raja S, Ma C, Yadav P. Beyond food deserts: measuring and mapping racial disparities in neighborhood food environments. J Plan Educ Res 2008;27:469-82.
42. 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. J Nutr 2010;140:1185-8.
43. Gittelsohn J, Rowan M, Gadhoke P. Interventions in small food stores to change the food environment, improve diet, and reduce risk of chronic disease. Prev Chronic Dis 2012;9:110015.
44. Langellier BA, Garza JR, Prelip ML, Glik D, Brookmeyer R, Ortega AN. Corner store inventories, purchases, and strategies for intervention: a review of the literature. Calif J Health Promot 2013;11:1-13.
45. Ortega AN, Albert SL, Sharif MZ, Langellier BA, Garcia RE, Glik DC, et al. Proyecto MercadoFRESCO: a multi-level, community-engaged corner store intervention in East Los Angeles and Boyle Heights. J Community Health 2015;40:347-56.
46. Public Matters LLC. Center for Population Health + Health Disparities [cited 2013 Nov 10]. Available from: URL: http://www.publicmattersgroup.com/cphhd
47. Public Matters LLC. Is there a supermamá in you? [cited 2013 Nov 10]. Available from: URL: http://vimeo.com/37260234
48. Ramirez AG, Velez LF, Chalela P, Grussendorf J, McAlister AL. Tobacco control policy advocacy attitudes and self-efficacy among ethnically diverse high school students. Health Educ Behav 2006;33:502-14.
49. Ribisl KM, Steckler A, Linnan L, Patterson CC, Pevzner ES, Markatos E, et al. The North Carolina Youth Empowerment Study (NCYES): a participatory research study examining the impact of youth empowerment for tobacco use prevention. Health Educ Behav 2004;31:597-614.
50. Holden DJ, Messeri P, Evans WD, Crankshaw E, Ben-Davies M. Conceptualizing youth empowerment within tobacco control. Health Educ Behav 2004;31:548-63.
51. Holden DJ, Crankshaw E, Nimsch C, Hinnant LW, Hund L. Quantifying the impact of participation in local tobacco control groups on the psychological empowerment of involved youth. Health Educ Behav 2004;31:615-28.
52. Winkleby MA, Feighery E, Dunn M, Kole S, Ahn D, Killen JD. Effects of an advocacy intervention to reduce smoking among teenagers. Arch Pediatr Adolesc Med 2004;158:269-75.
53. Wilson N, Minkler M, Dasho S, Wallerstein N, Martin AC. Getting to social action: the Youth Empowerment Strategies (YES!) project. Health Promot Pract 2008;9:395-403.
54. Centers for Disease Control and Prevention (US). Smoking and tobacco use: state and community resources [cited 2015 Mar 5]. Available from: URL: http://www.cdc.gov/tobacco/stateandcommunity
55. Millstein RA, Sallis JF. Youth advocacy for obesity prevention: the next wave of social change for health. Transl Behav Med 2011;1:497-505.
56. Vásquez VB, Lanza D, Hennessey-Lavery S, Facente S, Halpin HA, Minkler M. Addressing food security through public policy action in a community-based participatory research partnership. Health Promot Pract 2007;8:342-9.
57. Yoshida SC, Craypo L, Samuels SE. Engaging youth in improving their food and physical activity environments. J Adolesc Health 2011;48:641-3.
58. Gittelsohn J, Dennisuk LA, Christiansen K, Bhimani R, Johnson A, Alexander E, et al. Development and implementation of Baltimore Healthy Eating Zones: a youth-targeted intervention to improve the urban food environment. Health Educ Res 2013;28:732-44.
59. Gittelsohn J, Suratkar S, Song HJ, Sacher S, Rajan R, Rasooly IR, et al. Process evaluation of Baltimore Healthy Stores: a pilot health intervention program with supermarkets and corner stores in Baltimore City. Health Promot Pract 2010;11:723-32.
60. Krueger RA, Casey MA. Focus groups: a practical guide for applied research. 4th ed. Los Angeles: Sage Publications; 2009.
61. Fereday J, Muir-Cochrane E. Demonstrating rigor using thematic analysis: a hybrid approach of inductive and deductive coding and theme development. Int J Qual Methods 2006;5:80-92.
62. Strauss AL, Corbin JM. Basics of qualitative research: techniques and procedures for developing grounded theory. Thousand Oaks: Sage Publications; 1998.
63. Tsui E, Bylander K, Cho M, Maybank A, Freudenberg N. Engaging youth in food activism in New York City: lessons learned from a youth organization, health department, and university partnership. J Urban Health 2012;89:809-27.
64. Dodson JL, Hsiao YC, Kasat-Shors M, Murray L, Nguyen NK, Richards AK, et al. Formative research for a healthy diet intervention among inner-city adolescents: the importance of family, school and neighborhood environment. Ecol Food Nutr 2009;48:39-58.
65. Evans AE, Wilson DK, Buck J, Torbett H, Williams J. Outcome expectations, barriers, and strategies for healthful eating: a perspective from adolescents from low-income families. Fam Community Health 2006;29:17-27.
66. Neumark-Sztainer D, Story M, Perry C, Casey MA. Factors influencing food choices of adolescents: findings from focus-group discussions with adolescents. J Am Diet Assoc 1999;99:929-37.
67. Neumark-Sztainer D, Wall M, Perry C, Story M. Correlates of fruit and vegetable intake among adolescents. Findings from Project EAT. Prev Med 2003;37:198-208.
68. Berge JM, Arikian A, Doherty WJ, Neumark-Sztainer D. Healthful

eating and physical activity in the home environment: results from multifamily focus groups. J Nutr Educ Behav 2012;44:123-31.
69. Ayala GX, Rogers M, Arredondo EM, Campbell NR, Baquero B, Duerksen SC, et al. Away-from-home food intake and risk for obesity: examining the influence of context. Obesity (Silver Spring) 2008;16:1002-8.
70. Santo CA, Ferguson N, Trippel A. Engaging urban youth through technology: the Youth Neighborhood Mapping Initiative. J Plan Educ Res 2010;30:52-65.
71. Flicker S, Maley O, Ridgley A, Biscope S, Lombardo C, Skinner HA. e-PAR Using technology and participatory action research to engage youth in health promotion. Action Res 2008;6:285-303.
72. Strack RW, Magill C, McDonagh K. Engaging youth through photovoice. Health Promot Pract 2004;5:49-58.
73. Checkoway BN, Gutiérrez LM. Youth participation and community change. New York: Haworth Press; 2006.

ADVISING UNDERGRADUATE PUBLIC HEALTH STUDENTS: A PHASED APPROACH

Lauren D. Arnold, PhD, MPH
Elizabeth S. Embry, MPH, MBA
Cassie Fox, MPH

With the growth of undergraduate public health (UGPH) programs comes the challenge of providing effective advising for these new majors. UGPH students' needs are distinct from those of master of public health (MPH) students: they seek broader perspectives of public health and have multiple curricular requirements outside their UGPH major. This difference in undergraduate and graduate student needs presents a challenge for undergraduates at schools and programs of public health, where advisors are experienced with more focused advising needed for MPH students. The distinction between UGPH and MPH students, particularly related to professional growth and skills, can also be confusing for practitioners. In contrast, faculty/staff in stand-alone UGPH degrees (i.e., at institutions without MPH programs) have expertise addressing general undergraduate needs, but their public health experience may be limited.

The Association of Schools and Programs of Public Health's (ASPPH's) "Critical Component Elements of an Undergraduate Major in Public Health" outlines fundamental public health and liberal arts domains that UGPH degrees should address.[1] The "Critical Component Elements" recognize the importance of advising but leave logistics to institutional discretion, with the understanding that schools work within existing structures to meet UGPH needs. Yet, is the traditional undergraduate advising model truly appropriate for UGPH?

Undergraduate advising ranges from ensuring that students meet graduation requirements to assisting with professional and personal development.[2] Faculty, staff, and practitioners can assume three roles: academic advisors, who inform about degree requirements and academic rules; mentors, who focus on professional and personal growth, with no input on degree progress; and developers, who encompass both roles.[3] For the purpose of this article, the term "advisor" encompasses all three roles.

Undergraduate advisors typically approach student interactions based on academic year: freshman sessions focus on curriculum planning, sophomore and junior meetings incorporate professional development, and senior sessions focus on post-graduation planning.[4] However, student needs also vary among peers within class year. One student may enter college with the knowledge of what major/career path to pursue, while another student may not decide until junior year. These different needs may not be discussed adequately using year-based advising. While this challenge has been raised in the literature, no solution has been offered.

We suggest that UGPH programs approach advising in consideration of the student's stage of educational discovery rather than purely academic year. Drawing on our collective experience in UGPH and discussion with colleagues, we propose four stages to the UGPH major (Table 1) and discuss related student needs and advisor roles.

UGPH STUDENT STAGES

Decider

The "decider" is a high school senior or undergraduate who is exploring degree options. Deciders know little about public health or may view it as a route to medical school that doesn't focus on basic science. With a passion for helping others and saving the world,[5] deciders often ask two key questions: (*1*) What is public health? and (*2*) How is public health different from medicine? These questions are followed with: What classes will I take in this major? and What can I do with my degree? (Table 1). The answers they receive are important factors in their decision to declare the major.

Because deciders seek big picture information, advising should begin with an introduction to public health fundamentals. Most information deciders receive comes from academic advisors, and websites can reinforce information and provide examples of public health in action (Table 2). Along with presenting