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Conducting a Community "Street Survey" to Inform an Obesity Intervention: The WE Project

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Abstract

Using a CBPR-approach, a citywide survey was conducted to explore perceptions of obesity and interventions to reduce obesity within an African American urban community. More than 1,300 surveys were collected within three months; 92.9% of respondents agreed or strongly agreed that obesity was an important health issue in the community and the majority indicated that family-based interventions were the preferred pathway for improving physical activity (86.0%) and nutrition (85.2%). Engaging community members in survey development and implementation was an effective approach to build local research capacity and establish a shared agenda of reaching a diverse sample of community residents.

Keywords

Community-Based Research; Community Health; Community Participation; Obesity; Surveys

INTRODUCTION

Obesity is a chronic condition that is both a pathway to other major health concerns and an outcome generated by a complexity of social determinants that disproportionately affect African American and low-income communities.[1,2] This disparity is apparent in nationally representative surveys which have found that 48% of African American adults are obese

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compared to 36% of white adults.[3] While researchers generally agree that obesity arises from a complex combination of genetics, socioeconomic, and environmental factors,[4] the importance of context or place cannot be understated.[5] Access to healthy food, safe places to engage in physical activity, and neighborhood walkability are all factors which can impact obesity.[5,6] Developing community based interventions to address obesity cannot occur in isolation of input and community prioritization. However, a history of distrust stemming from unethical research practices from such atrocities as the Tuskegee syphilis study to the use of Henrietta Lacks' cells without consent[7] as well as everyday power imbalances between powerful institutions and communities, can impede African Americans' willingness to participate in research needed to develop culturally and contextually appropriate health interventions.[8] In recent decades, community-based participatory research (CBPR) has entered the discourse of highly relevant research paradigms[9] and in particular, has emerged as a viable approach not only to build local research capacity and increase the translational potential of evidence-based research, but also to alleviate researcher mistrust and waning research participation.[10,11]

CBPR and Citizen Science

There is increasing recognition across the scientific spectrum that engagement of citizens in scientific endeavors has significant benefits, starting with the types of research questions that are being asked, robustness of data collection efforts, and the tremendous potential of community members to contribute to meaningful and contextually relevant solutions, regardless of scientific discipline.[12] Furthermore, the importance of engaging community researchers, or citizen scientists, in the research enterprise beyond the limited role of research "subject" has emerged as a viable and necessary response to the academic-community divide and is critical to the credibility of the entire research enterprise.[12,13] The basic principles of CBPR align with the concept of *citizen science,* an approach which arose out of ecology and astronomy research[14] and has now been expanded to describe the various types of participatory research often seen in public health.[14,15] Community researchers and citizen scientists are typically persons without formal training in the science of the topic of interest (although this might vary somewhat, particularly for engagement in the harder sciences).[16] Both community researchers in public health and citizen scientists in more varied fields adhere to similar operational principles informing participation including the expectation of co-learning, collaboration and co-creation of knowledge which will be of benefit to the targeted communities.[17,12] Similarly, citizen science and CBPR both highlight the importance of research questions driven by community need, building local capacity, and the collective transformative impact of researcher-community collaborations and knowledge production.[15,16] Engagement of laypersons in all phases of the research process, including data collection efforts,[13,18,19] have the potential to have a transformative impact on researcher-community collaborations and community relevant impact.[16,20]

Wellness Engagement Project

The Wellness Engagement (WE) Project was established in 2011 as an academic-community partnership between [UNIVERSITY] and [ORGANIZATION], a local non-profit community development corporation, and utilized a CBPR framework to understand and address health in a low-income urban community. Consistent with the principles of CPBR,

the WE Project established the Community Health Leadership Council (CHLC) consisting of key leaders from diverse community sectors to serve as an advisory board to ensure the community voice was included throughout the project. A key principle of CBPR is that community input informs the research question,[21] as such, the WE Project's focus on obesity was in direct response to community feedback. Obesity was identified as an issue of concern through a series of community meetings hosted by the WE Project and attended by residents and representatives from various community, faith-based, health, and other civic organizations. Subsequently, the WE Project conducted a community-engaged needs assessment utilizing strategies such as asset mapping,[22] a community survey, "house chats"[23] and town hall meetings to inform the development of a pilot intervention to increase physical activity and improve dietary quality and intake in [CITY].

This paper describes the development and implementation of one component of the needs assessment, the community survey. We adapted a street-intercept survey methodology[24] by incorporating a participatory approach which aimed not only to seek input but also to mobilize community partners and develop support. The purpose of this paper, therefore, is to describe our engagement with Ambassadors and community partners in the development and implementation of a community-wide survey, and to report the findings of the survey.

METHODS

Study Context

[CITY] is an independent city in [STATE], just south of the state's capital, Richmond. It has a total population just under 32,000[25] and is divided into seven administrative wards (Table 1). The majority of the population (78%) is African American and 25% of the residents live below the federal poverty line; [CITY]'s median annual household income is $32,169 - well below that of the [STATE] state median of $66,149.[25] Along with economic difficulties, residents face disturbingly poor health factors and outcomes. [CITY] is ranked last, 133 out of the 133 counties in [STATE], for overall health factors and health behaviors (including obesity rates, smoking rates, and violent crime) and is also ranked 133/133 for poorest health outcomes and lowest quality of life in [STATE].[26] Obesity is a major public health concern in [CITY], with rates of adult obesity at 45% – compared to the [STATE] average of 28%.[26] At 41.5 per 100,000 persons, the diabetes rate in [CITY] is also the highest in the state.[27] Similarly, rates for other diseases which are correlated with obesity, such as heart disease, are all higher in [CITY] than in [STATE] as a whole.[28]

Recruiting Wellness Ambassadors

To build local capacity and promote community participation in all aspects of the research, the WE Project hired and trained community residents as *Wellness Ambassadors* – community researchers who collaborated with research staff to develop and implement all components of the needs assessment and intervention. A total of 16 Ambassadors were recruited at public meetings and through community partner referrals, flyers, and social media advertisements. Ambassadors were required to be at least 18 years of age, reside in [CITY] and demonstrate a strong interest in improving the health and wellbeing of the community. Demographic characteristics of the 16 Ambassadors are shown in Table 2.

Development of Survey Instrument

The goal of the survey was to better understand the community's perceptions of obesity, openness towards behavioral change, access to affordable produce and intervention preferences. Consistent with the principles of CBPR, the survey was collaboratively developed by a team consisting of academic researchers, Wellness Ambassadors, and CHLC members, thus providing an important co-learning opportunity. The community stakeholders often voiced concern about questions that might be perceived as negative or invasive and encouraged questions that were constructed as non-judgmental and affirmative. On the other hand, the research team shared information about question construction, internal and external validity, the importance of having a representative sample, missing data and data analysis. Initially, validated instruments were presented by the academic research team as the preferable option; however, Ambassadors and CHLC members encouraged the research team to develop questions compatible with the community's perceived level of readiness for research. The team reviewed survey drafts over the course of four meetings and were especially attuned to the phrasing of questions, ensuring that questions sounded neutral and would not be perceived as intrusive. For instance, personally identifiable or sensitive data was not collected; in an effort to protect privacy yet recognizing the importance of location within the city, rather than asking for a participant's address, it was decided that ward location could be determined by a combination of neighborhood name, councilperson, and location of the nearest playground, park, corner store, or carry-out store.

The survey was pilot tested for content validity with 56 individuals. For example, wording of some questions were clarified and other minor changes were made including spelling out the acronyms for the Wellness Engagement Project and [CITY] Wellness Consortium. Pilot testing revealed that several residents did not know their ward councilperson and that some neighborhoods were known by multiple names; therefore, questions about neighborhood landmarks (e.g. playgrounds, corner stores) were included in the final survey to establish ward representativeness and it was determined that answers to at least two of the four location items were sufficient to make a correct ward determination.

The final 24-item survey included questions about health and obesity, demographics (age, sex, local residency), as well as cellphone ownership and text capability to determine if text messaging would be feasible in an intervention. The survey was designed to be self-administered and was determined to require only 5–7 minutes, on average, to complete.

Data Collection

A survey administration guide was created and weekly team meetings were used to train the research team and address issues related to project implementation (Table 3). Surveys were distributed in-person and were self-administered. Ambassadors first explained the purpose of the survey and then made a personal request for respondents whether at a group meeting or approaching an individual. The Ambassadors were assigned to first distribute surveys within their specific wards ([CITY] is divided into seven wards); however, they also distributed surveys city-wide. At weekly team meetings, Ambassadors shared a list of upcoming community wide activities and identified potential recruitment sites within each ward. CHLC members, program/academic staff, and Consortium members also distributed surveys

at key locations such as the YMCA, churches, and other community-based organizations. Monetary or token incentives were not provided to survey participants.

Implementation challenges.—Various ethical issues were discussed including issues of social proximity, selection bias, social desirability, scientific rigor, and data integrity.[29] To address issues related to proximity and socially desirable responses, surveys were designed to be self-administered unless participants indicated they needed help completing the survey. Maintaining privacy and confidentiality of participants especially given the likelihood that participants may be known to the Ambassador, was an important training consideration. Consequently, Ambassadors provided survey participants with a manila envelope wherein to place completed surveys.

Another issue of concern was that Ambassadors might exclusively approach members of their social network to complete surveys. However, this concern was counterbalanced when after the first few weeks of reaching out to those within close physical and social proximity, they expanded their reach to those outside their networks.

Face-to-face survey recruitment was identified as optimal both to build relationships and for residents to learn more about the WE project. Ambassadors, however, were unfavorable towards a door-to-door strategy for completing surveys due to neighborhood safety issues and general mistrust of the community towards individuals or groups who conduct door-to-door solicitation. In response to these concerns, the team determined that distributing the surveys in public spaces or events would be a more acceptable approach. Ambassadors also wore a yellow project T-shirt and name button while distributing surveys to identify their affiliation with the WE project.

Study Sample

A minimum sample size of 1,000 was chosen to represent 3% of the population in [CITY], which is similar to sample sizes of government-funded community surveys in the region.[30] Survey distributiton was stratified by city Ward, and Ambasssadors were instructed to seek out participants of various genders and ages. Exclusionary criteria included not being a [CITY] resident and age younger than 18 years. Despite these parameters, in some cases, youth or non-residents participated and these survey responses were excluded from the analysis.

Data Analysis

Descriptive statistics were used to summarize elements of survey dissemination, such as data collectors, distribution locations, and demographics of survey participants and responses. All data analysis was performed by VCU research team using JMP Pro 13 statistical software from SAS.

RESULTS

Survey Dissemination

The surveys were distributed at a wide range of venues including faith-based organizations, health and wellness fairs, ward and City Council meetings, walking tracks, parks, food banks, gas stations, corner stores, social service organizations, as well as at House Chats[23] and informal conversations (Table 4). Ambassadors distributed a majority of the surveys (59%), followed by CHLC members (27%), program/academic staff (9%) and Consortium members (5%) (Table 2). A total of 1,317 survey responses were collected in three months. After excluding responses from non-residents (203 out of 1,317 or 15%) and those younger than 18 (20 out of 1,317 or 2%), 1,044 survey responses were included in the analysis. Ambassadors reported high participation rates of those approached and indicated that the refusals (5%) they encountered cited lack of time or being non-residents.

Survey Responses

The characteristics of the survey respondents are shown in Table 5. About one-third of the survey participants were male and the majority (54.1%) were residents between 30 and 65 years old. Respondents came from all seven wards with the highest concentration being from Ward 6 (19.7%) and the lowest from Ward 1 (9.4%). Nearly all participants were in agreement regarding the questions of “obesity or being overweight is an important health issue to address in [CITY]” (93%), “weight is an important health issue in my own family” (82%), “I would like to exercise more, but I need support and encouragement to make behavior changes” (82%), and “being as healthy as we can be is important to my family and me” (95%). Forty three percent (43%) agreed or strongly agreed that fresh fruits and vegetables are not usually available at their local store (Table 6). With regard to the responses about the preferred intervention approach, the majority indicated that the optimal approach was to work at the family level with parents and children to help them eat healthier (86%) and to become more physically active (85%); the majority (77%) also indicated that they have a personal cellphone that they use to send and receive text messages (Table 6).

DISCUSSION

Our study expands upon research which has shown the effectiveness of street-intercept surveys to reach urban and underserved communities[24,31] and posits that incorporating a participatory approach to the design and dissemination of the survey can not only improve reach, but just as importantly, build community capacity. The extensive WE partner network and especially the efforts of the Ambassadors resulted in the collection of more than 1,300 surveys within three months. The use of laypersons as a main conduit for data collection was effective largely because of their desire to ensure the survey was inclusive of diverse community input. The Ambassadors were instrumental in ensuring that community-level anxieties, particularly regarding mistrust of research and concerns about the ubiquitous poor health rankings, were considered with the phrasing of questions. Furthermore, there was a demonstrable sense of ownership which resulted in high levels of engagement from the Ambassadors and Leadership Council members who also expressed anxiety about ensuring we were effective in reaching a diverse sample.[32,33] Engaging laypersons in community

research may result in emotional burden as well as credibility dilemmas.[29,34–36] Ambassadors clearly communicated their need to engage the community using a survey which had a clear purpose and one which they co-created, primarily because as the frontline workers[37–39] representing the WE project their credibility was at stake. Furthermore, although the survey development process was lengthy, especially in terms of seeking feedback from a wide range of stakeholders, once the survey was finalized, the entire team assumed ownership. This input enhanced internal and external validity while improving recruitment and potentially improving accuracy of the information. The Ambassador input resulted in greater sensitivity to the community context but was also an important tool for building community trust.[40]

Findings reflect community wide acknowledgement of obesity as a central issue of concern and a clear need for programs to promote healthy lifestyle behaviors. Consistent with previous research in underserved African American communities, lack of access to fresh produce was a barrier to healthy eating, reiterating the importance of intervening on multiple levels.[6,41,42] Furthermore, respondents expressed a clear preference for programming that involves the family as a unit which supports research that indicates family based treatment have been shown to be most effective for obesity treatment among youth.[43,44]

Dissemination and Implications of Study Findings

Consistent with the principles of CBPR, we disseminated the findings to key stakeholders. We also hosted a youth day[45] to share the study findings and to seek input on the intervention development. Using key aspects of the needs assessment findings, we produced and hosted a play, “Changes and Choices,” [45,46] to further engage the community in the intervention planning. Based on survey and other study data, as well as existing evidence-based programs, the pilot intervention will include both parents and children while incorporating community-level activities aimed at positively impacting food choices and increasing physical activity. Furthermore, as a result of the community capacity built through the Wellness Engagement Project, the [CITY} Wellness Consortium was established as an independent community consortium to sustain and expand the work initiated from the academic-community research partnership.[47]

Strengths and Limitations

Several limitations need to be considered which affect the generalizability of the study. The survey was not a random selection of residents; instead it was a stratified, focused effort to ensure a diverse sample across the City. Initially, there was some concern that Ambassadors may only distribute the survey amongst those they know. However, this issue was specifically addressed in training and Ambassadors were requested to collect survey data from within and outside their network and neighborhood to reach a diverse sample. Although not necessarily a study limitation, the survey questions were phrased less directly due to Ambassadors input and consideration of the community context and readiness for research participation. However, this tension between research need and community context and readiness is anticipated in CBPR, and is not considered a barrier but instead an opportunity for co-learning. Fortunately, neither partner relationships nor community context remain static; academic-community partnerships and community relationships

continually evolve as trust is developed.[48] For example, if a community survey was conducted today in [CITY], it is likely that there would be higher levels of trust due to the sustained engagement of the [PROJECT] as well as the [CITY] Wellness Consortium. The timing of when certain methodologies are used and the content of questions need to be carefully considered against the backdrop of community context and readiness.[48] Furthermore, while we developed a rigorous verification process to determine the ward location for those who were unable to identify their neighborhood name or ward councilmember, there may still be minimal error with regard to ward assignment. Overall, the strengths of this study include the large sample, good representation of men and residents across each of the wards, adherence to CBPR principles, and most importantly, community input that will serve to inform obesity related programming and initiatives in a low resource city whose residents are at high risk for obesity and its co-morbidities.

CONCLUSION

Researchers need to be cognizant and sensitive to the relational aspects in determining the use of certain research methods and approaches, particularly when working within communities of color who may have historic skepticism of researchers. The process of close collaboration with Wellness Ambassadors and other community stakeholders to develop and implement the survey in a predominately African American urban community demonstrates the concomitant responsibility of listening to and integrating community input. This process demonstrated the foundational elements of engagement in practice; the importance of community input and subsequently provided strong credibility and support for future efforts of the WE project.

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Table 1.

Petersburg City demographics by ward

Ward	% of Population Within each Ward*	% African American*	% Aged 18–64*	Median HH Income*
1	14.8	73.1	64.6	$24,435
2	15.3	75.2	61.8	$38,143
3	14.6	69.2	66.3	$52,158
4	14.0	76.2	65.8	$36,686
5	13.6	86.6	65.2	$22,105
6	13.8	94.0	60.4	$26,738
7	13.9	81.0	66.4	$37,557
missing/unknown	-	-	-	-

** Source:* M. Bittner, Petersburg City Planner, personal communication, February 6, 2015.

Table 2.

Characteristics of survey distributors

Variable	Wellness Ambassadors n=16	Leadership Council n=9	Consortium Members n=3	Program Staff n=4
Age				
18–29	6 (38%)	1 (11%)	0	0
30–45	4 (25%)	3 (33%)	1 (33%)	2 (50%)
46–64	6 (38%)	4 (44%)	2 (67%)	2 (50%)
65+	0	1 (11%)	0	0
Sex				
Female	10 (63%)	4 (44%)	2 (67%)	3 (75%)
Male	6 (37%)	5 (56%)	1 (33%)	1 (25%)
Race/Ethnicity				
African American	15 (94%)	8 (89%)	1 (33%)	4 (100%)
White/Other	1 (6%)	1 (11%)	2 (67%)	0
Survey Distribution				
(N=1,044)	617 (59%)	281 (27%)	56 (5 %)	90 (9%)

Table 3.

Summary of Wellness Ambassador survey administration training points

Survey Recruitment	Survey Administration	Safety
• Utilize social network to obtain participants	• Survey to be self-administered unless have difficulty reading/ writing	• Door-to-door is not required
• Contact at least 2 organizations in your neighborhood	• Do not explain question if they don't understand, ask them to respond as best as they can	• Only go where you feel comfortable
• Identify and attend community events scheduled in assigned ward	• Do not write in answers	• Bring a friend
• Canvas your neighborhood	• Check for completeness while respondent is there	• Wear WE t-shirt or button
	• Only one survey per person – ask if they have already taken it	

Table 4.

Survey distribution points (N=1,044)

Location	n (%)
Other (businesses, social networks, etc)	381 (36.5)
Misc. community events	142 (13.7)
House chats	126 (12.1)
Faith based organizations/Churches	117 (11.2)
Neighborhood canvassing	90 (8.6)
Health & Wellness Day event	87 (8.3)
Housing estates/Housing complexes	55 (5.3)
Other community organizations	46 (4.4)

Table 5.

Characteristics of survey participants (N=1,044)

Variable		n (%)
Age		
	18–29	300 (28.7)
	30–45	184 (17.6)
	46–65	381 (36.5)
	66+	153 (14.7)
	Missing	26 (2.5)
Sex		
	Male	333 (31.9)
	Female	707 (67.7)
	Missing	4 (0.4)
Ward		
	1	98 (9.4)
	2	138 (13.2)
	3	191 (18.3)
	4	163 (15.6)
	5	109 (10.4)
	6	206 (19.7)
	7	107 (10.3)
	Missing	32 (3.0)

Table 6.

Frequency of survey responses (N=1,044)

	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)	Missing n (%)
Obesity or being overweight is an important health issue to address in Petersburg	634 (60.7)	336 (32.2)	45 (4.3)	24 (2.3)	5 (0.5%)
Weight is an important health issue in my own family	376 (36.0)	484 (46.4)	146 (14.0)	34 (3.3)	4 (0.4)
I would like to eat healthier, but I need more education about the right foods to eat and cook	305 (29.2)	526 (50.4)	165 (15.8)	39 (3.7)	9 (0.9)
I would like to exercise more or be more physically active, but I need support and encouragement to make behavior changes	336 (32.2)	515 (49.3)	151 (14.5)	38 (3.6)	4 (0.04)
Being as healthy as we can be is important to my family and me	564 (54.0)	432 (41.1)	32 (3.1)	9 (0.9)	7 (0.7)
My neighborhood is a safe place for my family and me to engage in physical activity/exercise	208 (19.9)	521 (49.9)	219 (21.0)	83 (8.0)	13 (1.2)
I cannot afford to buy healthy foods to eat	167 (16.0)	321 (30.7)	431 (41.3)	115 (11.0)	10 (1.0)
Fresh fruits and vegetables are not usually available for purchase at my local neighborhood store	175 (16.8)	268 (25.7)	420 (40.2)	176 (16.9)	5 (0.5)

	Family n (%)	Parents n (%)	Children n (%)	Missing n (%)
The best way to really help families become more physically active is to work with:	889 (86.0)	75 (7.2)	64 (6.1)	7 (0.7)
The best way to really help families eat healthier is to work with:	889 (85.2)	92 (8.8)	54 (5.2)	9 (0.9)

	Yes n (%)	No n (%)	Missing n (%)
Before today, had you heard about the WE project?	340 (32.6)	696 (66.7)	8 (0.8)
Before today, had you heard about the PWC?	238 (22.8)	797 (76.3)	9 (0.9)
Have you heard of the Petersburg Million Mile Challenge?	303 (29.0)	732 (70.1)	9 (0.9)
Do you have a personal cellphone that you use to send and receive text messages?	807 (77.3)	204 (19.5)	33 (3.2)